

# **The Fourth Book Of Natural Magick**

## The Proeme

From animals and plants, we have now come to household affairs. There we provided diversity of new fruit fit for our use. Now we shall seem to have sowed nothing, and produced nothing, unless we show how, And what we sowed and produced at great charge and pains, may be preserved against the cold, and injuries of the outward air, that they may come forth in their seasons. It were the part of a wicked and slothful man carelessly to let that die and come to nothing, when he had provided with so much care and pains. Wherefore as you were witty to produce them, you must be as diligent to preserve them. And Husbandman that stores up fruit, shall have good provision for the winter. For says Marcus Varro, they serve for several meats, and no man stores them up but to produce them when he has need of them, to defend, or use, or sell them. I shall first set down the inventions of our ancestors, who were very diligent herein, for they found sundry things by diverse means, and faithfully delivered the knowledge of them to posterity. Then I shall relate what I know to be true, intermixing some of my own inventions, and such as I think to be of greatest concern, and that I have often tried. I shall besides add some considerations of Bread, Wine, and Oil, and such as are of great profit for the Husbandman to provide for his family with the lesser cost, always setting down the natural causes, that they being perfectly known, a man may easily invent and make them. But to proceed to the work...

## Chapter I

"How Fruit may be long preserved upon their Trees."

E will begin with Fruit. And whereas fruit and flowers both may be preserved either upon their own mother tree which bear them, or else being plucked off from it, we will first show, how fruit may be preserved upon their own tree, and first rehearse those things which the Ancients have set down concerning this matter and next, what we ourselves have found by our own experience. Our ancestors, when they would have fruit to last long upon the tree, were often found first of all to bind them to the stock or to the boughs, lest any tempest should strike them off, or toss them up and down. Besides, they did intercept that juice from them, which should ripen them. For there are some kinds of fruit, which, as soon as ever they be ripe, will stay no longer upon the tree, but fall down of themselves, though they are not so much as shaken. Other fruit there are that will stick longer and faster to their hold. Besides, they were often found to cover them with certain cases or shells as it were, thereby guarding them from the injuries of the weather, both hot and cold, and also the mouths of devouring birds. How to make,

"Pomegranates hang long upon their trees,"

Some have wreathed and platted about the fruit the smaller boughs that grow hard by, that the rain may not come forcibly upon it to break it or chop it, for if it be once Bruised, or that it does but gape and have any chops in it, it will soon perish. And when they have so done, they tie them fast to the stronger boughs, that they may not be shaken. And then they bind the tree about with a kind of Broom Withes, that the Daws or Crows, or other kinds of birds may not come at the fruit to gnaw it. Some do frame earthen cases fit for the fruit, and cover the same with Straw Morter, and let the fruit

hang still upon the tree in them. Others do wrap up every one of the Pomegranates in Hay or Loam, and then daub it thick over with Mortar which has chopped Straw in it, and so fasten them the stronger boughs, the the wind may not shake them. But all these practices must be used when the weather is fair, and there is neigher rain nor dew stirring, as Columella teaches. But Beritius uses this means to make them stay long on their tree. He takes the blossoms of the tree when they begin to wither, and wraps in them every Pomegranate by itself, and then binds them about with bonds, thereby preventing their Putrefaction, and their Chawns and chops which otherwise would be in them. Others put them in earthen pots every one by itself, and covers them will and settles them fast, that they may not be broken by knocking against the stock or arms of the tree, nor by hitting one against the other. For by this means you shall have them always better grown then by any other. Varro says, that if you take Pomegranates before they be ripe, as they stick upon their stalks, and put them into a bottomless pot, and cover them, boughs and all, in the ground, so that no wind may come at them, you shall not only find them whole when you take them out, but they will be greater also then if they had hung still upon the tree. Palladius shows,

"Citrons may be preserved upon the Tree."

even by shutting them up in certain earthen vessels fit for such a purpose, for so you may keep them upon their tree almost all the year long. If you would have,

"Grapes hang upon the Vine, Fresh and good, even till the Spring of the year,"

Beritius prescribes you this course. You must dig a pit in a very shadowy place near to the Vines, about a yard deep, and fill it up with sand, and set up some props in it. Then you must loosen the joints of the Vine branches, and wind them in together with the clusters of Grapes to be tied to the props, and then cover them, that no water may come at them.. You must take heed also the the Grapes do not touch the ground. A thing which I have often put into practice, but it fell not out to my expectation. For still the Grapes were half rotten, and their color quite faded. Columella says, there is no surer way then to prepare certain earthen vessels which may hold each of them a cluster of Grapes, so that they may have scope enough, and they must have every one four handles, whereby they may be tied to the Vine, and their lids or coverings must be so framed that the middle may be the place of closing, where both sides of the cover may fall close together when the clusters are in, and so meeting may hide the Grapes. But you must see that both the vessels themselves, and also their coverings be well Pitched both within and without, for the pitch will do good service herein. When you have thus covered and shut up your Grapes, then you must lay good store of Mortar with Straw chopped in it upon the vessels. But in any case, look that the Grapes be so placed in the vessels, that they touch no part thereof. Tarentinus gives this counsel. The clusters that first grow, you must pluck off, and then others will come up in their steads, if you look carefully to the Vine. Now these later clusters will be very backward and long before they are ripe. Take some earthen vessels, and let them be somewhat open below. Put into them your later clusters, and let the upper part of them be very close covered, and then bind your vessel fast to the Vine that so the wind may not shake them. Palladius says, If you be desirous to keep Grapes upon the Vine till the springtime, you must take this course. Near unto a Vine that is laden with Grapes , you must make a ditch about three foot deep and two foot broad in a very shadowy place, and when you have cast sand into it, stick up certain props, and wind the bunches daily towards them, and when you have wrought them to stand that way, bind them to your props without hurting the Grapes, and then cover them to keep them from the rain. The Grecians likewise counsel you to shut up your Grapes into certain earthen vessels which are somewhat open beneath, but very close and fast shut above, and so you may preserve them long upon the tree. If you would preserve,

"Grapes upon the Vine till new come again, so that upon one and the same Vine -branch, may be seen old and new Grapes both together,"

You may effect it by this device, which I myself have used. For, all the former experiments are the inventions of Antiquity, and, because there is great difficulty in working them, and small profit when they are wrought, therefore I esteem them as toys and matters of little worth. But this I have experienced myself, and preserved good Grapes upon a Vine until May and June, and so have seen both new Grapes, and Grapes also of the former year together upon one and the same branch. When Vintage time is past, you must take the tops and pliant twigs of such Vines as grow by the house side, and wind them at the window into the house, and bind them fast to the summers or beams with the sprigs of Broom, as with strings or thongs, that they may be surely stayed from wagging up and down. But you must let them in handsomely that the windows may be opened and shut conveniently. By this means you shall keep them safe from the injury both of the cold weather and the devouring birds. When there is any frost or wind abroad, keep the windows close shut, and open them again when the air is waxed calm and warm. And so deal by them till the Spring is come. And when the Vine has begun to bear new buds and leaves, then let your twigs out of prison, and let them back out again into open air, and their let them take the comfort of the warm Sun. So shall there grow new Grapes upon the same twigs where the old Grapes are. I have also effected the same,

"By another means."

Because it was a great trouble, and a very irksome piece of work, to take that course every year, I have thought of another device whereby the same effect may be attained both more prettily and miraculously. About the time they are often found to prune the Vines, make a choice of two special branches on the Vine, such as are most likely to bear fruit. Cut off the tops of either of them, but leave the branches still growing on the Vine, and leave two or three buds upon either branch. Then take a vessel made of Chalk or white Clay, and let there be a hole bored quite through the bottom of it, and so place it, that it may stand fit for the branches to be drawn through it, so that they may stand a little out above the brims thereof. When our branches are so seated, then fill the vessel with earth. And that you may work more surely and speedily too, you must set over your earthen vessel, another vessel full of water all summer long, which must be stopped toward the bottom with a clout somewhat loosely, that the clout's end hanging down into the earthen vessel, may bedew the earth that is in it continually by little and little, so shall your sprigs or branches bring forth both fruit and leaves, and moreover take root in the vessel that will shoot out into new twigs. After Vintage time, cut off the branches from the Vine a little beneath the earthen vessel, and so carry them into a close house that is situated in a dry place where no tempests can come at it, as in wine cellars, or such like. Let the windows be netted over, that the birds may not come at them. In the wintertime, if there come any fair days, bring them forth into the Sun, and, when the weather is extreme cold, keep them in so much the closer and warmer rooms. If you preserve them thus until August, you shall have old and new Grapes both together upon one branch, and each of them will be quick and well colored.

## Chapter II

"How Flowers may be preserved upon their own stalk."

By the like devices as those were, we may also preserve flowers upon their own stalk, yet not so easily as fruit may be preserved upon their own tree. Neither yet can they be made to last so long as fruit, because fruit are of a harder substance, but flowers are soft and tender. First therefore we will show,

"How Roses may be preserved upon their own stalk."

If you take a Reed or Cane, and cleave it when it is green as it grows by the Roses, and put in the Rosebud as it is upon the stalk, within the Reed, and then bind some paper about the Reed somewhat loosely, that it may have as it were a breathing space, your Roses will thereby be well preserved upon their stalk, as Dydimus reports. Palladius says, If you shut up your Rosebuds as they grow upon their stalk, into a growing Reed which you have cleft for that purpose, and close up the Reed again, that he cleft does not gape, you shall have fresh Roses when you will, if you open your Reed again. I have tried this device, and found it in some sort to be true, and answerable to my intentions. I took the Rosebuds before they were blown, and shut them up into a Reed (for the Roses and the Reeds must be planted near together) and the cleft which I made in the Reed, being but slender, I bound it up again that it might not stand gaping, (only I left a fit passage for the Rose stalk to stand up) and so I preserved them a great while. The like device I used,

"To preserve Lilies upon their stalks for a long time."

I cleft the Cane between the joints, and put the Lilies into it as they grow upon their stalk before they were blown, and so the joint of the Cane closing upon them beneath, and the cleft above being stopped with Wax, the Lilies were then long preserved upon their stalk. The very same experiment I practiced upon Clove-gilliflowers, and so I had them growing upon their stalk a great while. And whensoever I would use them, I broke up their cases wherein they were preserved, and so by the comfort and force of the Sun, they were blown and opened themselves.

### Chapter III

"How to make Fruit Safes, or places where fruit may be conveniently preserved."

Now we will show how you may preserve fruit when they are taken off from the tree. That we may so do, we must first know the causes of their Putrefaction. The Philosophers hold, that the temperature of the air being exceeding variable by reason the the variety of celestial influences which work upon it, is also of that force, that it causes every thing which it comes at, even whatsoever is contained under the Cope of the Moon, to hasten towards an end, and by little and little to decay continually. For the air which is apt to search for everything when it lights upon any fruit, finds in it a certain natural heat somewhat like to its own heat, and presently closes with it, and entices as it were the heat of the fruit to come into the air. And the fruit itself, having a natural coldness as well as heat, is very well content to entertain the heat of the surrounding air, which exhausts the own heat of the fruit, and devours the moisture of it, and so the fruit shrinks, and

withers, and consumes away. But man is not of such a dull sense, and of such a blockish wit, but that he can tell how to prevent these inconveniences, and to devise sundry kinds of means, whereby the soundness of fruit may be maintained against the harms and dangers of both cold, and of heat. And first we will speak of Fruit Safes, or artificial places, whereby the danger of heat may be avoided. Then we will show that there is a special choice to be made of times, when the heat will be of small force. And then we will prescribe the manner of gathering fruit, lest they might be Bruised with handling or falling, which if they should, it would be their Bane, and the beginning of their Putrefaction. And, last of all, we will teach you how to lay them up in diverse and sundry places, whereby you may prevent the heat and moisture of the air, from doing them any harm. We will speak of some peculiar places of the world, which are excellent good to preserve fruit in. Theophrastus says, that some fruit will last the longer, because they are laid up in some certain places. Wherefore, in a certain place of Cappadocia, which is called Petra, fruit may be preserved forty years, and yet they are all that time fertile, and very fit to be sown. No, says he, if they be kept threescore years, or threescore and ten, they will still be very good for meat to be eaten, though not so good for seed to be sown. The place he reports to be a high place, and open for the winds, and to stand lower towards the north then to the other three quarters of the world. It is reported likewise, that fruit are preserved in Media, and other high countries, longer and better then in other places. But these are the properties of some peculiar places only. But generally for all Fruit Safes, it is the judgment and counsel of all the best and most learned Husbandman, that they must be so situated, that they may have windows towards the north, which must lie open in the springtime, and every fair day, that the northern wind may blow into them. But in any case there must be no windows made towards the south, because the southern wind will make our fruit full of wrinkles. Let us see therefore,

"What places are fittest to lay up Quinces in."

Marcus Varro says, that they will be preserved well if they are laid up in some place that is cold and dry. Columella also lays them up in a cold floor or loft where there comes no moisture. Palladius likewise would have them laid up in some cold and dry place, where there comes no wind. So if you would,

"Preserve Apples well,"

Columella teaches us to lay them up in a very cold and a very dry Loft, where neither smoke, nor any noisome favor can come at them. Palladius would have them laid up in some close and dark places, where the wind cannot come at them. And Pliny would have them laid very thin one by another, that so the air may come equally at every side of them. So,

"Pomegranates may be preserved,"

As Columella reports out of Mago the Carthaginian, if first you warm them in Seawater, and then smear them with some Chalk, and when they are dry, hang them up in some cold place. And Palladius, out of Columella, prescribes the very same course. In like manner you may,

"Preserve the fruit called Ziziphum,"

If you hang them up in a dry place, as the same author is of opinion. If you would have,

"Figs to last a great while,"

Columella teaches you, that as soon as they be thoroughly dry, you must lay them up in a very dry

room, and thereby you shall preserve them for a long time. So,

"Damosins may be long preserved,"

If you lay them upon hurdles or grates in some dry place, where the Sun may come at them. Palladius shows, that,

"Chestnuts may be long preserved,"

If they be raked up in the earth, where they may lie dry. And I myself have seen in Barry,

"Almonds preserved sound a great while,"

Three years or four years together, shells and all, being laid up in a dry place. If you would have,

"Wheat long preserved,"

Varro says, that you must lay it up in high Garners which have a thorough air on the eastside and on the northside. But in any case, there must be no moist air come at them from any waterish places thereabouts. Some have their Garners under the ground, as caves, as it is in Cappadocia and Thracia, and others have their Garners in pits and ditches, as it is in the nearer part of Spain. Only they lay the Chaff under it, and take special care that no moisture nor air may come at it, except it be when they take it out to use some of it. For if the air be kept from it, the Worm cannot breed in it to devour it. By this means they keep their Wheat good and sweet, fifty years, and they preserve their Millet above a hundred years as Theophrastus records. If you lay up your Wheat with any Dust in it, it will Putrify. For the extrinsecal heat of the Sawdust, does as it were lay siege to the natural heat of the grain, and so chokes it up, because it has not as it were a breathing place, and by the means it is overheated and so Putrifies. Florentinus reports out of Varro, that Corn may be very well preserved above the ground, if it be laid up in such places, as have eastern light shining into them. They must also be so situated that the northern and the western winds may come at them moderately, but they must be safe from all southerly winds. And you must make in them a great many of channels, whereby both the warm vapours may have issue forth, and also the cooling air may have access in. The best way whereby you may,

"Preserve Beans,"

Is, to Parch them reasonably well, for so there will be less store of moisture in them, which will cause them to last the longer. Theophrastus writes, that in Apollonia and Tarentum, they preserve Beans long without any Parching at all. Pliny makes mention of certain Beans that were laid up in a certain cave in Ambracia, which lasted from the time of King Pyrrhus, until the war which Pompey the great waged against the Pirates. The same Theophrastus writes also that,

"Peas may be long preserved,"

If you lay them up in high places where the wind has his full force, as in Media and the like countries. But the Bean will be kept there much longer, so also the,

"Pulse called Lupines, may be long preserved,"

If you lay them up in a loft where the smoke may come at them, as Columella writes. For if any



moisture does settle upon them, presently the Worm breeds in them, and if once the Worm has eaten out the Navel as it were of the Pulse, that which is in them like a little mouth, then cannot the other part which is left, be ever fit for seed. Palladius likewise says, that this kind of Pulse will last very long, if it be laid up dry in Garners, where no moisture can come at it. Especially if it may be continually perfumed as it were with smoke. But now let us show how to do that which is the most difficult thing of all in this kind, namely,

"How to preserve flesh and fish,"

I have seen flesh and fish preserved from Putrefaction, for a whole month together in very cold places, without any other art at all besides the coldness of the place. In rooms that are made under the ground, and very cold, where there comes neither heat nor any southerly wind, but that they are continually cold and dry, and almost every thing may be preserved without Putrefaction. In a certain Monestary that is upon the hill Parthenius, near Naples, I say the carcasses of men kept whole and sound for many years together. The hill is covered over with snow almost continually. And in the tops of the mountains, where the snow lies in ditches and pits, conveyed thither of purpose to keep it, look what Pears, and Cervises, and Apples, and wild Chestnuts have been gathered up by chance together with the snow, and put into the same pits, after the space of a year that the snow was consumed away, we have there found the same fruit, so moist, and fresh, and goodly to the eye, as if they had been but then plucked off from their trees. To conclude, there is nothing better and more available for the preservation of anything, then is the dryness and the coldness of such places as they are laid up in, to be kept.

#### Chapter IV

"What special time there must be chosen for the gathering of such fruit, as you mean to lay up in store for a great while after."

The principal matter which I would have to be observed in this case, is the choosing of your time when to gather all such fruit as you would lay up in store, that they might last long. For if we desire to defeat heat and moisture which will mar our fruit, and cause it to Putrify, we cannot take any better course against them, then by making choice of such a time to gather our fruit in, as when those planets and stars, which are the principal authors of that heat and moisture, are themselves become cold and dry, or at the least not hot and moist in any high degree. The Moon, when she is waning, is cold and dry. If there be any fruit gathered when the Moon abounds with heat and moisture, the very same qualities will also the fruit abound withal, and so they will very soon be Putrified, as every man of any wit will easily judge. And therefore all those that have written of husbandry, with one consent do give it for a precept, that fruit are to be gathered in the decaying of the Moon. Moreover, the night and the day, the morning and the evening, do bestow their moisture and their dryness upon fruit, accordingly as they themselves are either moist or dry. The day, by reason of the presence of the Sun, is hot and dry. The night, by reason of the absence of the Sun, is cold and moist. The evening, by reason of that it has a little of the Sun, is partly warm, and yet by withal by reason of approaching night, is partly moist. The morning, is partly cold, by reason of the tail of the night, and partly warm, by reason of the Sun time will be partly warm. But lest we should make the matter too hard and difficult, by giving such Astrological precepts, we will frame ourselves to the most plain, and yet a



very exact rule, namely, the the situation and aspect of the planets is to be regarded, whereby the air becomes colder and dryer then at other times, and so consequently the fruit may last the longer. And, because we will not be too tedious, we will spare to allege authorities and experiments which might be brought for the proof hereof, seeing all living creatures that are gendered in the full of the Moon, or somewhat before, do grow much more then they that are gendered when she is in the waning. but let us come to examples. If you would know,

"The time, wherein Citrons are to be gathered,"

Palladius teaches you in his book of the preserving of Citrons. If you would gaeep Citrons to keep, says he, you must pluck them with their boughs and leaves from the tree in the nighttime, when there is no moonlight stirring. Pontanus, a countryman of ours, has elegantly set down this matter. If you desire, says he, to keep Citrons long without any harm or loss of their vigor, you must take this course. Pluck off the fruit together with the branches and leaves as they were upon the tree in the nighttime when the Moon shines not all all. Then hang them up on some hook or tack in a dark and closed place, see that you touch them but very softly, and not let any wind come at them, or else lay them among chaff and dry Straw . So shall you keep the fruit sound and good, and the leaves also green for a great while together. There is also,

"An appointed time wherein Quince-pears are to be gathered."

I have found no better or surer way to preserve Quince-pears, says Columella, then by gathering them that were very ripe and sound, and without any blemish, at such time as the air was temperate, and the Moon in the waning. Likewise the same author prescribes unto us,

"A time wherein Apples are to be gathered that they may last longer,"

Bids us to thus. About August, choose, says he, the sweetest Apples, such as be not overripe, and they will be kept long. Pliny counsels us to gather them after the Equinoctial in Autumn, but never before the Moon is fifteen days old, nor yet before one of the clock. And Palladius shows,

"What time Pears are to be gathered in, that they may last long."

In a calm day, when the Moon is in the waning, and that also toward the latter end, between the two and twenty and eight and twenty day of the Moon, you must take them off the tree with your hand, at such time of the day as the Sun is in some strength of heat, that is, either between seven and ten in the morning, or else between two and five of the clock in the afternoon. And the Pears which you so gather, must be somewhat hard and green. Pamphilus, a Husbandman prescribes,

"A certain time wherein to gather Cherries, that they may last long."

Cherries are a kind of fruit that will soon wither, and yet if you gather them before the rising of the Palladius, and so lay them up, they will be fresh and good a great while. Palladius prescribes,

"A certain time wherein to gather Medlars, that they may last long."

They are to be gathered, says he, in a fair day about noontime, and they must not be thorough ripe. Columella says, that,

"The time wherein you gather Pomegranates to be laid up and preserved."

Must be a fair day when the air is temperate. Pliny would have you to let them be well dried by the Sun, that there be none of the night's dew left upon them. Didymus chooses,

"A certain time wherein Corn is to be gathered and laid up."

When you have reaped your Wheat or Barley, you must let it lie abroad in the field one or two days, or at the least one whole night, and carry it away before the rising of the Sun, that so it may be thoroughly cold when it is laid into the barn, for it is that which will cause the Corn to last much the longer. Columella shows, and he teaches it of his own experience,

"What time Beans are to be gathered, and laid up to be long preserved,"

You must fell your Beans, says he, when the Moon is in the very last of her last quarter, and you must fell them before daylight, then, when they are waxed dry upon the floor, presently you must thresh them out before the Moon is renewed, and when you have laid them on cooling, then carry them into your Garner to be laid up. For if you deal thus with them, you shall be sure to preserve them from the Worm, which otherwise will breed in them. The very same experiment does Palladius record out of the very same author. Likewise,

"Garden Peas may be preserved for a whole year,"

If you lay them on drying in the Sun, and when you have fetched out all their moisture, take them out of their shells, and lay them up. For by this means shall you preserve them from Putrefaction.

## Chapter V

"Of the manner how to gather fruit, as also to help and dress the stalk that grows into them, whereby we may prevent the first original, and the occasion of their Putrefaction."

Whereas our ancestors did perceive that the first beginning of Putrefaction in fruit did arise from the little stalk that grows into them, or from that part of the fruit where the stalk is entertained into it, (for is is requisite, that the beginning of the spoil, and destruction of them should arise in the very same part, wherein they began first to live and receive their nourishment) they have therefore devised sundry means whereby to prevent all such mischief and harm, as the stalk might bring upon the fruit. Moreover, fruit are to be gathered very carefully, especially those that we intend to lay up and store, insuring they will not be knocked and hit up against one another. For the hitting of them together will bring about and cause their Putrefaction. Besides, we must see that they are in their best state when we gather them, that they be not perfectly ripe; for as they must not be altogether sharp and green when they are gathered, so neither must they be come to their full ripeness. Furthermore, the fruit that you would lay up, you must take a diligent view of them, and see that they be found, without any bruise, or speckedness, or Worm in them. But let us come to some examples. And first,

"How we must gather Apples, and how we must dress their stalks."

Columella would have such Apples to be preserved, which have a good Relish, and are gathered

when they are reasonably ripe. And he would have them to be so disposed and placed when they are laid up, that the blossom end should stand upward, and the stalk end downward, even so as they grow upon the tree. But they must not be laid to touch each other. Neither must they be thoroughly ripe when they are gathered, but somewhat sharp and sour. Besides, you must see that every several kinds of Apples must be laid up in several rooms or cell by themselves. For when sundry kinds are laid together in one cell, there will be disagreement among them and the sooner will they Putrify. Experience whereof we have in Wine, which if it be made of sundry kinds of Grapes, it will not be so durable, as when it is made of only one kind. Palladius says, if you keep Apples in store, you must gather them very charily, that they be taken off from the tree without any blemish, and you must drench their stalks in scalding Pitch, and so place them upon a boarded Loft, with the stalkend downward. And you must take heed that you do not touch them, nor meddle with them till we take them out as being fit for our use. Pliny likewise shows, that Apples must be placed upon their stalkends. Apuleius the Greek counsels us to gather our Apples when they are in their full strength and we must take special regard, that they be gathered by hand without any bruise, and then laid up in such sort that they may not touch one another. But in any case they must be sound and not thoroughly ripe. He says also, that if you smear the tops of Apples with the juice of green Ragwort, it will preserve them from Putrefaction. If you would have,

Citrons to last long,

Palladius counsels you to gather them with their boughs which they grow upon, and lay them up in several, as we showed before out of Pontanus. Columella shows,

"How Pears must be gathered that they may endure long."

Namely, if you gather them before they be thoroughly ripe. And Palladius says, that they must be gathered charily by hand, that they may not be Bruised. And you must diligently cull out from them, all such as have fallen from the tree, and lay up none but those that are very sound, and somewhat hard and green, and such as such as are gathered with their stalks still upon them. Democritus says that those Pears will keep best, which are besmeared with Pitch about the stalk, and so hung up. We will also show the manner how to gather,

"Cervices that they may last."

Marcus Varro says that Cervices are to be gathered even while they are still very sour, and so to be hung up, that they may ripen but slowly, and that also within doors. For if you lay them up when they are grown to some ripeness, that will not last so long. Theophrastus by this means procured Cervices to defer their ripening even until winter. Columella says, they must be charily gathered with your hand. Pliny says, they must be hung up, as they are on their boughs. Palladius says, they must be gathered when they are hard, and so hung up together with their stalks in some close and dark place. So,

"Figs are to be laid up as they are upon their boughs,"

As Africanus teaches, but, says he, they must be gathered before they are ripe. For when once they are come to be ripe, they will hang no longer upon their tree, as other fruit do, but will fall off presently. They are also to be gathered and laid up with their stalk or their Navel upon them, that is, the part which they hold by, and depend upon their mother. For if they be so gathered, they will last the longer sound and good. Palladius also would have them to be gathered while they be green and unripe, and that with their stalks upon them, and so be laid up. Cato says, that the boughs of the Figs

tree whereon the Figs grow, are to be preserved together with the fruit, and those Figs that you would keep, must be gathered somewhat green and sour. Columella says, that Figs, if we would keep them long, must be gathered, neither when they are very ripe, nor yet when they are too green. Palladius says, that if you would have,

"Peaches well kept,"

You must fill up the Navel of the Peach, that is, that part of the peach whereby it closes with the stalk, with one drop of scalding Pitch. I for my part have preserved,

"Damosins a great while longer."

By hanging them up with their stalks, upon the rafters of a house, but there is none so good to be kept, as those that are of a purple color. Palladius would have them to be gathered while they are unripe, yet he would not have them too raw, but in any case they must be sound, without any Worm, or bruise, or any other blemish. So also the fruit called,

"Ziziphum may be preserved,"

If it be gathered with the boughs that it grows upon, and folded or wrapt up in his own leaves, and so hung upon upon the beams of a house, as Palladius shows.

"Medlars may be kept long,"

If you gather them when they are but half-ripe, and hang them up with their boughs in some house. Beritius shows,

"How Pomegranates are to be gathered and laid up to last."

You must gather them, says he, with a very chary hand, lest if you touch them somewhat roughly, they should be hurt or Bruised. And that would be an occasion of their Putrefaction. Columella says, that Pomegranates are to be gathered with their stalks, and the stalks to be put into an Elder tree, because the Elder tree is full of Pitch, that it may easily entertain the Pomegranate stalks. The same author reports out of Mago the Carthaginian, that all fruit, which you would lay up in store, must be gathered with their stalks upon them, yes, and if it may be without spoil or hurt of the tree, they must be gathered with their boughs too, for this will be very helpful to cause the fruit to last longer. Palladius says, that Pomegranates may be preserved best, if you gather them sound, and lay Pitch upon their stalks, and hang them up in due order. Nay, they will keep so much the better, the longer the boughs are, which are plucked off from the tree with them. Pliny says, that they are to be gathered with their boughs, and the boughs to be stuck into the Elder Pith, and so to be preserved. Cato shows, how we may preserve,

"Myrtle twigs with their berries upon them."

They must be taken from the tree when the berries are somewhat sour, and so bound up with their leaves about them. Didymus has taught us, how we must gather,

"Grapes that they may last long"

We must take special heed that every Grape be perfect and sound, and for this cause we must have

a very sharp knife or hook, to cut of those Grapes that are unsound easily and without any stroke, even with one touch as it were. When you gather your Grapes they must be in their full strength, neither too raw, nor yet past their best ripeness. Some cut off the branches together with the clusters, and when they have so done, they remove all the Grapes that are either Putrified, or dried away, or unripe, and pluck them off with a pair of Nippers, lest they would infect their fellows. And after this, they take the branches whereon the clusters grow, and that end which was cut, they dip into scalding Pitch, every one by itself. Others hold, that Grapes must be hung up in some high roof, where the air may have full scope at them, but the Grapes must be note of those which grow toward the tops of the branches, but they must be the lower clusters. Palladius says, if we would have Grapes to last, we must see that we gather such as are without blemish, they must not be too harsh and sour, neither must they be over-ripe, but it must be a very clear Grape to the eye, and somewhat soft to be felt, and yet it must have a reasonably tough skin. If there is any among them with a blemish or is Bruised, we must cut it away. Neither must we suffer among them any one that is over hard, which the Sun has not in some sort overcome with his heat. After all this, we must drench the cut ends of the stalks in scalding Pitch, and so hang them up.

## Chapter VI

"In what grounds those fruit should grow and be gathered, which we would lay up."

We must not omit to speak of another necessary observation in this matter. Namely, in what ground, in what air, under what climate, it is best that those fruit, which we should lay up, should grow and be gathered. What fruit does grow in moist and watery hollow and low grounds, as also those which grow in such grounds as are much soiled and Manured with fat Muck. They are much subject to Putrefaction. For, in as much as they grow with great store of moisture and heat in them, they have the occasion and original of their own bane within their own bosom. But in wild fruit, and such as grow upon the tops of mountains, in dry grounds, and such as are not Manured at all, and such as the southern heat does continually beat upon, if falls out clean otherwise. For the fruit that grow in such places, are for the most part, dry, and very solid. Not abounding either with heat or moisture. Hesiodus in his book of Husbandry, never makes any mention of Muck or soiling. Questionless, he would never have omitted such a necessary part of Husbandry as this is, but that he saw the inconvenience of it in this respect, that it makes the fruit more subject to Putrefaction, and many infirmities. Fruits that grow in wild and stony grounds, where the wind has his full force, will preserve themselves without any skill and device practised upon them. Wherefore, if other sleights be added, which are helpful to their preservation, they will surely last much the longer. But let us see whether Antiquity has made any mention of this matter. An first let us hearken to Theophrastus, who shows,

"In what ground there grow the best Dates or Palms to be preserved for store."

If you preserve and lay up an Dates or Palms, says he, you must make choice of those which grow in sandy grounds, as in that country which is called Syria. And there are in all that country but three sandy places where they do grow, and these are excellent good to be preserved. Those which grow

in other places are not durable, but presently wax rotten. Of all those Palms which Syria yields it is held by some, that none are good to last. But those only which grow in the Palm valley, a place so called there. But those which grow in Egypt, and Cyprus, and elsewhere, they are all very soon Putrified. And Pliny reports out of the same author, that those Palms which grow in Salt and sandy grounds, as in Judea, and Cyrenian Africa, may be preserved. But not those which grow in Cyprus, Egypt, Syria, and Seleucia of Assyria. The same Theophrastus, speaking of Beans, shows,

"In what ground there grow the best Beans to be preserved for store."

One country, says he, differs from another, and one climate differs also from another, in respect of the fruit that grows in them. Either to be good to lay up, or to be subject to Putrefaction. And therefore the Beans that grow in Apollonia which is near to the Ionian Sea, are not subject at all to any Worms or rottenness, so that they are best of all others to be preserved. Likewise the Beans that grow about Cizicum are very durable.

## Chapter VII

"How fruit must be shut up and kept close that the air comes not to them."

We have shown before, that, if we would preserve fruit long, we must keep away both heat and moisture from them. Both which qualities are found in the air. Wherefore we will first set down the devices of Antiquity in this behalf. And then our own devices and experiments. And first,

"How to keep Apples close without Putrifying."

We will begin with Aristotle, who says, that fruits are to be kept in bottles full of air, that so the outside air may be excluded. For thus he speaks in his Problems. When it happens that the fruit of the trees, and flesh, and such like, do last without Putrefaction, when they are shut up in bottles full of air, or in other vessels that are well covered, and closed up on every side? It is because all things are like to be corrupted when they are stirred or removed, but when things are filled, they stand unmovable? For it cannot be, that anything should be moved unless there is some vacant space to be moved in. Now those things which are so shut up are every way full, and therefore are preserved without Corruption. As if he should say, the air which is so enclosed, cannot so soon procure Putrefaction, by reason that it is not so subject to the daily alterations of the circumstant air. Or if the fruit could send forth their heat and moisture which is in them, yet it should be kept in upon them by the fullness of the bottles. But let us see what the masters of Husbandry do teach concerning the matter. As for example,

"How to preserve Citrons without Putrifying."

Palladius does thus preserve them from the air. He shuts up every Citron in a vessel by itself. Plasters them up. And sets them orderly in a fit place prepared for that purpose. Sotion says, the the Pome-Citron must be very well Plastered over with stamped Mortar, that so it may keep one whole year together, without any harm or blemish. So have others taught us the way,



"How to keep Apples shut up close."

Columella says, that every several kind of Apples is to be placed in a several cell by themselves. For when diverse kinds are shut up in one and the same cell, they will not agree so well together, but will soon Putrify. But when you have disposed of your Apples that they are set in good order, then shut up the lids of the Coffers or cell upon them and plaster the lids over with Loam, that has Straw chopped in it, lest the air get in. Palladius would have every Apple placed by itself in several earthen vessels, which must be Pitched within, and Plastered over with Mortar. Or else they may be covered in clay and so preserved. Pliny says, that the custom of his time was, to make choice of the best Apples, and to plaster them over with Mortar or Wax. That it may be like a crust on them. But, says, he they must be fully ripe first, for otherwise they will grow and wax larger, and so break out of their houses. Others put every Apple or Pear into a several earthen vessel, and smear the vessels all over with Pitch, and then put the vessels with the fruit in them, into a barrel or tub, and so preserve them. Apuleius did preserve them in an earthen pot lid all about on the inside with Wax. Some preserve them by lapping them up in Reits or Seaweed, and so shutting them up into earthen Pitchers. But they must be every one wrapped up severally by itself, and so lid, that they may not touch each other. And besides, the Pitchers must be very well and close covered. Columella prescribes this course whereby,

"Quinces are to be shut up, that they may last."

They must be wrapped up in Fig leaves. And you must take some Potters white earth and put in Wine Lees to it, to make a Mortar of them. And with the Mortar, smear the Quinces. Then you must put them into some new vessels, and cover them all over with some dry plastering that they may not touch one another. Palladius puts them between two tile Shards, and closes them up with Loam round about. And then covers them over with dry Plastering, and so so lays them up in a new pot or basin that they may be kept apart. Democritus does first cover them over with leaves, and then he makes Mortar of Clay or of some Potters Chalk with hair chopped into it with which he smears the Quinces. And when he has dried them in the Sun, he lays them up. And whenever he would use any of them, he breaks their case, and there finds his Quinces in the same taking as they were, when he put them in. But Pliny teaches us very briefly, that if we would keep Quinces long, we must shut them close, that no air may come at them. By the like means, you may preserve,

"All things close exceeding well,"

Mago, when he would preserve any kind of fruit close, he covers them all over very carefully with Potters Chalk, and then dries it in the Sun. And if there happens to be any Chap in the Mould, he closes it up with Loam. And so when it is dry, lays it up. Others take a new earthen Pitcher, and strew it with the Sawdust or shavings of Poplar, or else the Holm tree. And then they place the fruit in it, in such a way that their lies some of the Dust between every fruit. Then they board that space, and make a floor over that level. And having so done, they strew the second level with the like Dust, and there also dispose of their fruit as in the other level. Then they board that space also. And make a third level, and so a fourth, and so forward till the Pitcher is filled. And when it is full, they lay a covering upon it, and plaster it over very carefully with thick Loam. Others put their fruit into a barrel, but they place them in such order that the one may not touch the other. And then they close up the barrel again, as Palladius reports. Africanus teaches a way whereby,

"Figs may be shut up to be preserved long,"

You must take a green Gourd, and make in it certain cells or hollow places of receipt. For every Fig, a

separate cell. Into these cells you must put your Figs and wrap the Gourd about with a swath of cloth or Leather. And then hang up the Gourd in a dark place where neither fire nor smoke may come at them. But you must see that the Figs which you would thus preserve, have their tails or stalks upon them. Others take a cup of Glass, or some other cup that you may see through, and set it upon the Figs, with the mouth downwards, and stop up with Wax every place round about, that no air may come within the cups's mouth. And so the Figs are preserved without any Corruption. Palladius rehearses the very same experiment out of the same author. Likewise,

"Cervices may be shut up in barrels,"

And thereby be preserved a great while. You must take Cervices presently as they are gathered, and make choice of those that are not Bruised nor blemished any way. These you must put into a barrel, and shut up the mouth of the barrel very close and Plaster it over with Mortar. Or else you may take clay Mortar, that is well made, and beaten together, that it may be about the thickness of Honey, and drench your Cervices in it, and then hang them up. So you may preserve them sound a while. And afterwards you must wash them, that the Mortar which sticks upon them may fall off. So the fruit,

"Ziziphum may be shut up in earthen vessels."

To be long preserved, as Palladius shows. But they must be gathered by hand, and that not before they be ripe. And you must shut them up in long earthen vessels, and Plaster them over, and so lay them up. He shows also,

"Medlars, and the fruit Tuber may be shut up in Pitchers, so to be preserved."

You must put your Medlars into Pitchers, that are smeared with Pitch on the inside. But the Pitchers wherein you put your Tubers, must not only be Pitched on the inside, but also daubed over on the outside. So Didymus shows that,

"Myrtle berries may be very well kept,"

To last long, if you gather them when they are green, and put them into a vessel, that is not Pitched, and so cover it close, and lay them up. Others lay them up with tails or stalks upon them. Palladius shows that,

"Nuts may be long preserved."

If you shut them up close in Coffers. But the Coffers must be made of Nut tree. The same Palladius shows,

"Chestnuts may be long preserved."

If you put them in Wicker baskets, and Plaster up the baskets round about. But the rods which the baskets be made of must be Beech rods. And they must be made up close, that no air may come at that fruit which is in them. Likewise,

"Roses may be shut up to be preserved."

If you take green Barley being plucked up by the roots, and put them into a barrel that is not Pitched. And lay Roses in among it before they are blown. For by this means you may keep them long. So

also you may shut up,

"Lilies, to make them last a whole year."

You must gather them with their boughs, as they grow, before they are blown, and put them into new earthen vessels that were never Pitched. And when you have covered the vessels, lay them up. And so shall you have Lilies of a year old. But if you have any use for any of them in the mean time, bring them forth into the Sun, and by the heat thereof they will be opened and blown. We will show also out of Didymus, how,

"Grapes may be shut up to last long."

Some take certain cases that are Pitched all within, and when they have strewn them with the Dust or dry powder of the Pitch tree, or the Fir tree, or the Black Poplar tree, or else with the dry flower of Millet, then they put in their Grapes . And so they last long. But they take their Grapes presently after the time of Vintage, and make special choice of those Grapes that are without any bruise or blemish, and they shut up th mouth of the vessels very close, and overlay them with Mortar. Or else they may be drenched in Clay Mortar, that is well beaten, and somewhat liquid, and then be hung up, and so kept for a while. And afterward when you would use them, wash them over, that the Mortar may fall off. Columella says, you must take the great Peat-grape, or else the hard-skinned Grape, or else the fair purple Grape, from the Vine, and presently Pitch their stalks with hard Pitch. Then take a new earthen Vat, and fill it with dry Chaff well sifted, so that it will be without Dust. And so hang up your Grapes upon it. Then take another Vat, and cover therewith the former, Grapes and all. And when you have laid the brims of both Vats together, then daub them up with more that is made with chopped Straw . And when you have done so, place them in a very dry loft, and cover them all over with dry Chaff.

"Wheat may be laid up close to be preserved,"

By putting it into caves or pits of the earth, as we have shown out of Varro. For the Cappadocians and Thracians put their Corn into caves and dens. The Spaniards put it into certain pits, and make special provision that the moisture and air may not come at them, except it be when they take out any for their use. For if the air does not breath upon it, it will be free from the Mice and such like Vermin. And it is known, that Corn thus laid up, has been kept clean and sweet fifty years together. Marcus Varro says, that,

"Beans and Pulse have been laid up in vessels, and so preserved for a long time."

But they must be Oil vessels. And they must be covered over with ashes. Pliny writes the very same experiment out of Varro. That Beans and Pulse being laid up in Oil-buts, and covered over with ashes, have lasted a great while. And being laid up in some hole of the earth, they have lasted up to one hundred and twenty years. So the Pulse called,

"Lentils, have been preserved long,"

As Columella shows. For if you put them into Oil vessels, or else into salting tubs, that they may be full. And so Plaster them over with Mortar, whenever you take them out again for your use, you shall find your Lentils sweet and good.

## Chapter VIII

"How the Ancients, when they had put their fruit into certain vessels, and so shut them up close, did put them also into some other vessels full of Liquor."

How the Ancients, by making up their vessels close, did shut out and keep away the air as being the author of all Putrefaction. So that it could not come into the fruit. Yet they did not by this means keep away the air out of those places where the vessels were laid, but that as the circumstant air was changed, either being disposed to heat, or cold, or drought, or moisture, so the air also that is within, must need to be changed. And consequently, the fruit also must be affected with the same change.

"How Quince-pears being shut up close, may be drowned for their better preservation."

An experiment which Democritus has set down. You must put your Quince-pears into a new earthen vessel. Cover it. And Pitch it all over, and so put it in a But of Wine. But so, that they may have Scope to swim upon the top of the Wine. For by this means shall you keep your fruit fresh and good for a long time. And besides, the Wine wherein they float, will have a very fragrant favor. Likewise,

"Apples being shut up close, and then put into Cisterns, will last long,"

As Palladius shows. You must put your Apples, says he, into earthen vessels, well Pitched and made up close. And when you have so done, drown those vessels in a Cistern, or else in a pit. Pliny puts Apples in earthen basins, and so lets them swim in Wine. For, says he, the Wine by this means will yield a more Odoriferous smell. Apuleius says, that Apples are to be put into a new pot, and the pot to be put into a Hogshead of Wine that there it may swim, and play on the top of the Wine. For so, the Apples will be preserved by the Wine, and the Wine will be the better for the Apples. So,

"Figs being shut up close, may be drowned for their better preservation."

As Africanus affirms. They take Figs, says he, that are not very ripe, and put them into a new earthen vessel. But they gather them with their tails or stalks upon them, and lay them up every one in several cells by themselves. And when they have done so, they put the vessel into a Hogshead of Wine, and so preserve their Figs. I have also proved it by experience, that,

"Peaches being shut up in wooden Cisterns, have been well preserved by drowning."

And I have proven it also in other kinds of Apples, that if they are shut up in a small vessel that is very well Pitched on the outer side, and so drowned in the bottom of a Cistern of water, and kept down by some weights within the water, that it may not float, they may be preserved many months without any Putrefaction.

"Pomegranates may be preserved in a Pipe or But that is half full of water."

As Palladius shows. You must hang up your Pomegranates within the But. Yet so, that they must not touch the water. And the But must be shut up close, that the wind may not come in. And as fruit

may be thus preserved, if the vessels be drowned in water or other Liquor. So there are some of opinion, that, if you hide those vessels underneath the ground, you may by this means also escape the danger of the alterations that are in the air. Columella shows that,

"Cervises being shut up close, and so laid under ground, will thereby last the longer."

When you have gathered your Cervises carefully by hand, you must put them into vessels that are well Pitched. And lay also Pitched coverings upon them, and Plaster them over with Mortar. Then make certain ditches or trenches about two foot deep in some dry place within doors. And in them so place your Pitchers, that the mouth may be downward. Then throw in the earth upon them and tread it in somewhat hard. It is best to make many trenches, that the vessels may stand asunder. Not above one or two in a trench. For when you have use of them, if you would take upon any one of the vessels, none of the rest must be stirred. For if they be, the Cervises will soon Putrify. Pliny reports the like out of Cato. That Cervises are put into earthen vessels well Pitched. The covering being Plastered over with Mortar. And then put in certain ditches or pits about two foot deep. The place being somewhat open, and the vessels set with the mouth downward. And Palladius writes out of those two authors, that Cervises must be gathered while they are somewhat hard, and laid up even when they begin to be ripe. They must be put in earthen Pitchers, so that the vessels are filled up to the top, and covered with Mortar. And then laid in a ditch two feet deep, in a dry place where the Sun comes. and the mouths of the vessels must stand downward, and the earth must be trodden in upon them. The same author writes,

"Pears being shut up in vessels, and so laid under the ground, will last the longer."

You must take those Pears which are hard both in skin, and in skin and substance. These you must lay upon a heap. And when they begin to turn soft, put them into an earthen vessel which is well Pitched, and lay a covering on it, and Plaster it over with Mortar. Then the vessel must be buried in a small ditch, in such a place as the Sun does daily shine. Others as soon as the Pears are gathered, lay them up with their stalks upon them in Pitched vessels. And close up the vessels with Mortar or else Pitch. And then lay them abroad upon the ground, covering them all over with sand. Others make special choice of such Pears as are often found, somewhat hard and green. And these they shut up into a Pitched vessel, and then cover it and set the mouth of it downward. And bury it in a little ditch in such a place as the water runs round about it continually. In like manner also,

"Apples being shut up close, may be hidden with the ground for their better preservation."

As Pliny shows. You must dig a trench in the ground about two foot deep, and lay sand in the bottom of it. And there put in your Apples. Then cover the pit first with an earthen lid, and then with earth thrown upon it. Some put their Apples in earthen bowls, and then bury them. Others put them into a ditch that has sand cast into the bottom of it, and cover it only with dry earth. The like device it is whereby,

"Pomegranates are preserved in small Buts which have sand in them."

You must fill a small But up to the middle with sand. And then take your Pomegranates, and put the stalk of them every one into different Canes. Or into the bough of an Elder tree. And let them be so placed asunder in the sand, that the fruit may stand some four fingers above the sand. But the vessel must be set within the ground in some open place. This also may be done within doors, in a ditch two foot deep. Others fill up the But half full of water, and hang the Pomegranates within the But, that they may not touch the water. And shut up the But close that no air may come in. Cato

shows how,

"Filberds may be preserved within the ground."

You must take them while they are new. and put them into a Pitcher, and so lay them in the ground. And they will be as fresh when you take them forth, as when you put them in. In like manner Palladius shows that,

"Chestnuts may be preserved."

If you put them in new earthen vessels, and bury them in some dry place within the ground. He says also that,

"Roses being shut up, may be buried in the ground for their better preservations."

If they are laid up in a pot, and well closed, and so buried in some open place. But now we will show,

"How all things that are shut up, may be preserved for many years."

Fruit are to be laid up in Vials of Glass, as we have shown before. And when the pipe or neck of the glass is stopped close up, then they are to be drowned in Cisterns, and they will last good for certain whole years. Likewise, flowers are to be closed up in a vessel that is somewhat long, and the neck of it must be stopped up, as we have shown before. And then they must be cast into the water. For by this means they may be kept fresh for a long time. I have also put new Wine into an earthen vessel that has been Glazed within. And have laid it in the water with a weight upon it to keep it down. And a year after, I found it in the same taste and goodness, as when I put it into the vessel. By the like device as this is, we may preserve,

"Things that are shut up, even for ever,"

If we wrap them up in some mixture with other things, so that the air may not pierce them through. But especially, if the mixture itself be such, as is not subject to Putrefaction. I have made trial of this in Amber. First reducing it to a convenient softness, and then wrapping up in it that which I desired to preserve. For where as the Amber may be seen through, it does therefore represent unto the eye the perfect semblance of that which is within it, as if it were living. And so shows it to be sound and without Corruption. After this manner I have lapped up Bees and Lizards in Amber, which I have show to many, and they have been persuaded that they were the Bees and Lizards that Martial speaks of. We see everywhere that the hair of beasts, and leaves, and fruit, being lapped up in this juice, are kept forever. The Amber does eternize them. Martial speaks thus of the Bee. A Bee does lie hidden within the Amber, and yet she shines in it also. As though she were closed up within her own Honey. A worthy reward she has there for all her labors. And the same author speaks thus of the Viper, being caught as it were in the same juice. The Viper comes gliding to the dropping Pine tree, and presently the Amber juice does overflow her. And while she marvels at it, how she should become entangled with that Liquor. All of a sudden it closes upon her and turns stiff with cold. Then let not Cleopatra boast. Herself in her princely tomb, seeing the Viper is interred in a nobler tomb then she. But if you desire to know how to make Amber soft, though there are diverse ways whereby this may be effected, yet let this way alone content you. To cast it into hot boiling Wax that is scummed and clarified. For, by this means it will become so soft and pliant, that you may easily fashion it with your fingers. And make it framable to any use. Only you must be sure that it is very new.



## Chapter IX

"How Fruit may be drenched in Honey, to make them last for a long time."

The Ancients finding by experience, that the shutting up of fruit in vessels, and the drenching of those vessels in water, was a notable preservative against Corruption, did then proceed farther. And began to drench the fruit themselves in diverse kinds of Liquors. Supposing that they might be the longer preserved if they were Soused in Honey, Wine, Vinegar, Brine, and such like. In as much as these Liquors have a special virtue against Putrefaction. For Honey has an excellent force to preserve. Not fruit only, but also even the bodies of living creatures from being putrefied, as we have shown elsewhere. Alexander's body, and the carcass of the Hippocentaur were preserved in Honey. Mere water they did not use in this. Of all other Liquors, Honey was most in request for this purpose. They supposing it to be a principal preserved against Corruption. Columella says,

"That Quinces may be preserved in Honey without Putrefaction."

We have nothing more certain by experience, says he. Then that Quinces are well preserved in Honey. You must take a new Flagon that is very broad brimmed, and put your Quinces into it. So that they may have scope within, that one may not bruise another. Then when your pot is full to the neck, take some Withy twigs, and plat them over the pot's mouth. That they may keep down the Quinces somewhat close, least when they should swell with Liquor, they should float too high. Then fill up your vessel to the very brim with excellent good liquefied Honey, so that the Quinces may be quite drowned in it. By this means, you shall not only preserve the fruit very well, but also you shall procure such a well relished Liquor, that it will be good to drink of. But in any case take heed, that your Quinces be through ripe, which you would thus preserve. For if they were gathered before they were ripe, they will be so hard, that they cannot be eaten. And this is such an excellent way, that though the Worm have seized upon the Quinces before they were gathered, yet this will preserve them from being corrupted any farther. For such is the nature of Honey, that it will suppress any Corruption, and not suffer it to spread abroad. For which cause it will preserve the dead carcass of a man for many years together without Putrefaction. Palladius says, that Quinces must be gathered when they are ripe, and so put into Honey, whole as they are, and thereby they will be long preserved. Pliny would have them first to be smeared over with Wax, and then to be Soused in Honey. Apitius says, Quinces must be gathered with a vessel full of Honey and new wine. The Quinces that were thus dressed, were called Melimela, that is to say, Apples preserved in Honey. As Martial witnesses, saying, Quinces Soused in pure Honey, that they have drunk themselves full, are called Melimela. Likewise Columella shows that,

"Other kinds of Apples may be so preserved,"

Not only the Melimela, but the Pome-paradise, and the Sestian Apples, and other such dainties may be preserved in Honey. But because they are made sweeter by the Honey, and so loose their own proper Relish which their nature and kind does afford, therefore he was wont to preserve them by another kind of practice. Palladius says, that,

"Pears may be preserved in Honey,"

In that they be so laid up therein, that one of them may not touch another. So Africanus reports, that,

"Figs may be long preserved in Honey,"

If they are so disposed and placed in it. That they neither touch each other, nor yet the vessel wherein they are put. And when you have so placed them, you must make fast the lid of the vessel upon them. And there let them lie without troubling them. And Palladius reports the same. Green Figs, says he, may be preserved in Honey. If you place them so that they may not touch each other. Florentinus also shows that,

"Cherries may be preserved in Honey,"

If you put them into a vessel that is strawed in the bottom with Savory, and so cast some Honey upon them. But your Honey must be somewhat sharp. So likewise

"Medlars may be preserved in Honey,"

To last a great while without rotting, as Palladius shows. But then they must be gathered before thoroughly ripe. Martial shows also, that,

"Nuts may be preserved in Honey,"

To be green all the year long. And he speaks it of his own trial and experience. You must take green Nuts, and pluck them out of their shells, and so let them be Soused in Honey. And the Honey wherein they are Soused, will become very Medicinable, insomuch that if you make a Potion of it, it will be very helpful to cure the arteries, and the jaws. Palladius says that,

"Peaches may be preserved in Honey,"

If you take out the stone before you Souse them. And besides that they will last long, this will also make them to be very well Relished. He says also that they may be well preserved in the Liquor Oxymel. To be brief, Columella says plainly that there is no kind of fruit but may be well preserved in Honey. But he prescribes it for a general rule in this case. That every kind of fruit should be preserved in several by itself. For if you lay up diverse kinds of fruit together, one of them will corrupt and mar the other. So also,

"Grapes may be preserved in Honey,"

And they will last long without any blemish in them, if they are so preserved, as Didymus writes. But we will show now,

"What kind of fruit are best preserved in Honey."

For, I have endeavoured myself in this practice, how to keep fruit without Putrefaction, and for this cause, I laid up all kinds of fruit in vessels of glass filled with Honey, that so I might prove, which might be preserved longest. And I found great difference among them. Some kinds lasting long and some but a little while. For the fruit that were by their won kind, full of moisture, did absorb the Honey. So that the Honey being itself absorbed, was not possibly able to preserve the fruit from Putrefaction. Grapes, Figs, and Peaches are soon Putrified by reason of their moistness. Quinces,

Apples, and Pears do last longer uncorrupted. But Nuts will last green and sound a whole year together.

## Chapter X

"How Fruit may be long preserved in ordinary wine, or sodden wine, or new wine, or else in wine Lees."

The Ancients likewise perceiving, that Wine would keep all things, and that Grape stones lighting into the Wine as it was barrelled up, did continue whole in the barrels for the space of a whole year. From this they gathered, that those fruit which were laid up in Wine, would be well preserved from Putrefaction. Neither did they stay there, but also proceeded to use Sodden Wine, new Wine, Vinegar, and Wine Lees, for that purpose. Because all these have a little of the substance of the the Wine itself. But we considering that there may be a very pure and durable Liquor Extracted out of the substance of Wine (for Wine, as it is of itself, will sooner be corrupted) have therefore used the help of that Extraction, whereby to preserve things sound and good time out of mind. But to return to them, and set down their examples. Palladius shows that,

"Quinces may be preserved in Wine."

For, if we lay them up in vessels filled with very good Wine, half with ordinary Wine, and half with new Wine, we shall by this means preserve Quinces a great while. Others Souse them in barrels of new Wine only, and so close them up. Whereby they cause the Wine to yield a very fragrant smell. So Democritus makes choice of the fairest and soundest Quinces, and puts them into barrels of new Wine, and thereby does preserve his Quinces and better his Wine. So,

"Apples may be preserved floating in Wine,"

As the same author shows. You must put some few Apples into a barrel of Wine that they may float up and down. And so shall you also better the Wine. Democritus would have them to be put into earthen pots. But Apuleius would have them put into barrels, and so closed up. And thus, says he, shall you procure an admirable sweetness and pleasantness in the Wine. Others would have them put into a new pot, and the pot to be drenched into a barrel of Wine, so that they may there swim. And then the barrel to be made up close. For this will be best both for the Wine and also for the Apples. Likewise,

"Figs may be long preserved in Wine,"

As Africanus shows. You must make a new earthen pot, not altogether round. But rather somewhat square and having a good sound bottom. Then you must gather your Figs with their Sprigs and stalks. And that before they are through ripe. Then put them fresh into your vessel, and place them so that they may lie from each other a pretty distance. And so put them in a barrel full of Wine, and there let them swim. But the barrel must be very well closed up, that the air gets not in. And until the Wine change and becomes sour, the Figs will never change, but continue in the same state as when they were put in. Palladius does report the very same experiment out of the very same author. Beritius shows, that,

**"Mulberries may be preserved in Wine."**

**But it must be such Wine as is made of Mulberries . And the vessels that they are put in must be made up very close. Likewise Pamphilius shows, that,**

**"Damosins may be preserved in Wine,"**

**If they are put into Hogsheads either of sweet Wine, or else new Wine. There to swim up and down, and the Hogsheads well covered. Palladius also teaches, that fruit,**

**"Ziziphum may be preserved in Wine."**

**So that it shall not have any tears or wrinkles. For if it is fresh gathered, and supplied with drops of new Wine, it will continue plump and full without any wrinkles. Didymus shows,**

**"How Grapes may be preserved in Wine,"**

**You must take a barrel that is half full of new Wine, and therein hang up our Grapes in such a sort, as the clusters may not touch each other, nor any of them touch the Wine. For by this means they will continue as sound as they were upon the Vine. Some do preserve them in Wine that is mixed with water. Grapes thus preserved in Wine, have been a great request among the Ancients. Athenaus makes mention of them out of Eubulus in Agglutinato. You must, says he, minister unto him good store of Grapes preserved in Wine. And Pherecrates, among other things that are to be eaten, makes mention of Grapes that were taken out of Wine. Cato shows, that,**

**"Pears may be long preserved in Sodden Wine,"**

**Especially the Tarentine Pears, and the Musk Pears, and the Gourd Pears. Varro says, that the Pears called Anciana, and Sementina are to be preserved in Sodden Wine. Pliny says, that the Tarentine Pears, and the Anciana are so preserved. Palladius says, that they may be preserved either in Sodden Wine or else in new Wine. But, says he, the vessels which they are put into, must be filled up with that Liquor wherein they are to be preserved. Which very same precept he learned out of Democritus. Columella shows how to make this kind of Sodden Wine of that sweet Wine which is called Mustum. Palladius show also, how that kind of,**

**"Peaches, which have the hardest stone, may be preserved long in Sodden Wine,"**

**You must fill up the Navel of the Peach (or that place wherein the stalk was fastened) with a drop or two of scalding Pitch, so that the Wine may not get into the Peach by that passage. And then shut up the vessel very close, that the air may not get in. Columella says, that,**

**"Cervises may be long preserved in new Wine,"**

**If you plat some dry Fennel above them, to keep them under, that still the Liquor may overflow them. But the coverings or lids of the vessels must be well Pitched, and Plastered over with Mortar. That the air may have no access unto them. Pliny says, that Cervises are to be preserved in Sodden Wine , by the judgment of Cato. Palladius also says, that Cervises may be preserved long in Sodden Wine . Columella shows,**

**"That Grapes may be preserved in new Wine,"**

**You must take a barrel that is well Pitched, and put into it a certain quantity of new Wine. Then make a hurdle as it were, of good stiff rods platted together, a little above the Liquor. Then place those upon those hurdles, certain new earthen vessels, and therein so dispose your grapes that they may not touch each other. Then cover your vessels and stop them up. After that, make another such a loft of hurdles, and then another, and so forward, as far as the greatness of the barrel will give you leave. And in every one of those rooms place your Grapes , as in the first. Then take the Pitched cover of your barrel, and smear it all over with good store of new Wine, and when you have laid it upon the barrel, make it up close, and lay ashes upon it. Others make no more ado, but only put their new Wine into the barrel, and make certain hurdles over the Wine, and there hang their Grapes out of reach of the Wine. And so cover the barrel and stop it up. The same author likewise reports, that,**

**"Damosins may be long kept in new Wine."**

**About harvest time, you must gather Damosins not being thoroughly ripe, nor yet too green, (but they must be wild Damosins, such as are in color like to the Onyx stone) and you must dry them in some shadowy place the third day after they were gathered. Then you must mingle Vinegar with new Wine, or else with Sodden Wine, in equal portions, and so put your Damosins into it. But they will be preserved the better, if you make your medley of certain quantity of Vinegar, mixed with twice so much water. Or else you may take the purple colored Damosins, and lay them up in an earthen vessel well Pitched. And then fill it either with new, or else with Sodden Wine, so that the whole fruit may lie under the Liquor. And then lay the covering upon the vessel, and Plaster it up. We may also preserve,**

**"Cucumbers in the Lees of Wine,"**

**as the Quintiles are of opinion. You must, say they, put your Cucumbers into the Lees of white Wine, before it be sour. And see that your vessel be full to the top. For by this means your Cucumbers will last fresh and good a great while. Didymus writes that,**

**"Olives and Grapes may be kept together."**

**You must take Grapes while they are fresh, and new and whole, and lay them up in a vessel among olives, so placed, that every Olive may stand between two Grapes, and so every Grape is between two Olives. And thus, the vessel being well closed up, they will preserve each other. Columella says, that**

**"Corneile, or Hamberry may be kept in Lees,"**

**And if it be well preserved so, it will serve to be used in the stead of Olives. Ovid declares this in the eighth book of his Metamorphosis. Columella shows that,**

**"Grapes may be preserved fresh and green in the Lees of Wine."**

**You must gather your Grapes when they are of a reasonable ripeness, and then lay them upon certain Hurdles, so that one cluster may not touch the other. Then bring them within doors, and tuck away the dry, and withered, and rotten Grapes with a pair of Tuckers. And when they have lain a while cooling out of the Sun, take three or four clusters according as the size of your pot, and put them into it among the Lees. And let the lid be made up fast with Pitch, that the Liquor may not break**

forth. Then you must take a great many of Vine stalks, and squeeze or press them will, with their Grapes upon them. Then lay the stalks and husks in the bottom of a barrel, and therein place your pots that you have filled with Lees and Grapes , and let their mouths stand downward, and let them stand in distance each from other so that you may ram in good store of Grape Kernels between them. And when you have filled the room with Grape stones stuff it hard about the pots. You must make a second room like the first, and fill it up in the same manner. Likewise you must make a third room and so forward, till the barrel be thoroughly filled even to the very brim, with pots, and Grape stones crammed in fast and thick upon it. But you must look to it, when you take forth any of the pots, that you take out a whole row together. For the Grape stones being stamped in thick together must not be stirred. If they are, they will become sour very soon, and so they will mar the Grapes. The Quintiles say, that,

"Cucumbers may be preserved in Vinegar."

And that very fresh and in their natural strength, if you hang them up in a vessel that has some Vinegar in it, that they may not touch the Vinegar, and then close up the vessel fast, that the air may not pass into it.. For by this means you may have green and new Cucumbers in the wintertime. So all other fruit may be preserved in Vinegar. But because Vinegar does mar the taste of them, therefore we will not speak of such preservings. But hereby we have learned to preserve, time out of mind,

"All things with Distilled Wine."

For Wine is of itself subject to Putrefaction many ways. But when it is often Distilled, that the Quintessence is Extraced from it, this Extraction is free from all Putrefaction whatsoever. Therefore all things that are drenched in this kind of Liquor, if the vessel is carefully closed up, will last unputrified even for a whole age, nor for all eternity. At Rome, I saw a Fish that was drenched in the water Distilled out of the Vine. And she was preserved five and twenty years, as fresh as while she was alive. And at Florence, I saw the like of forty years continuance. The vessel was made of Glass, and made up with the seal of Hermes. And I make no question, but that all things that are Soused in this kind of Liquor, will last sound and good for many ages. How many sorts of things I have preserved by this one means, it were too long here to rehearse.

## Chapter XI

"That Fruit may be very well preserved in Salt Water."

Next after Wine, Saltwater is of special use for preserving from Putrefaction. For such things as have been drenched therein, have lasted long very sound and good. The Ancients saw that whatsoever was preserved in Salt, was kept thereby from Putrifying. Wherefore, that they might preserve fruit from Corruption, they have used to drench them in Saltwater. Homer calls Salt a divine thing, because it has a special virtue against Putrefaction, and by it, bodies are preserved to all eternity. Plato calls it the friend of God, because no sacrifices were welcome to him, without Salt. Plutark says the Ancients were found to call it a divine influence, because the bodies of creatures that were seasoned with Salt from above, were thereby acquitted from Corruption. Salt binds, and dries, and knits together, and does protect bodies from Putrefaction, that in their own nature must Putrify. As



the Egyptians custom manifestly shows, who were found to season their dead bodies with Salt, as Herodotus writes. But let us come to examples. Beritius says, that,

**"Pomegranates are preserved in Saltwater ."**

You must take Seawater, or else Brine, and make it boil, and so put your Pomegranates into it. And afterward when they are through cold. Dry them, and hang them up in the Sun. And whenever you would use them, you must Steep them in fresh water two days before. Columella rehearses the opinion of a certain Carthaginian touching this matter. Mago would have, says he, that Seawater should be made very hot, and Pomegranates being tied together with thread or Broom twigs, to be drenched in it till they change their color. And then to be taken forth and dried in the Sun for three days, and afterward to be hung up. And when you would use them, you must Steep them in fresh and sweet water for the space of four and twenty hours before. And so they will be fit for your use. Pliny also reports out of the same author, that Pomegranates are first to be hardened in hot Seawater, and then to be dried in the Sun three days. And so to be hung up, that the evening dew cannot come to them. And when you would use them, to Steep them first in fresh water. Palladius writes the same out of Pliny. And he shows also,

**"Damosins may be preserved in Saltwater."**

They must be fresh gathered, and then drenched either in Brine, or else in Seawater scalding hot, and then taken forth, and dried either in the Sun, or else in a warm oven. Columella would have them drenched in new Wine, Sodden Wine, and Vinegar. But he gives a special charge also to cast some Salt among them, lest the Worm or any other hurtful Vermin do grow in them. Palladius likewise shows, that,

**"Pears will last long in Saltwater."**

First the water is to be boiled, and when it begins to rise in surges, you must skim it. And after it is cold, put into it your Pears which you would preserve. Then after a while take them forth and put them up in a Pitcher, and so make up the mouth of it close. And by this means they will be well preserved. Others let them lie one whole day and night in cold Saltwater, and then drench them in new Wine or in Sodden Wine, or in sweet Wine to be preserved. Others put them in a new earthen Pitcher, filled with new Wine, having a little Salt in it, and so cover the vessel close to preserve them. Likewise,

**"Medlars may be preserved in Saltwater."**

They must be gathered when they are but half ripe, with their stalks upon them, and Steeped in Saltwater for five days. And afterward more Saltwater poured in upon them, that they may swim in it. Didymus shows also, that,

**"Grapes may be preserved long in Saltwater."**

You must take some Seawater, and make it hot. Or, if you cannot come at that, take some Brine, and put Wine in it. Then drench your clusters of Grapes in it and lay them among Barley Straw . Some do boil the ashes of a Fig tree, or of a Vine, in water, and drench their clusters therein. And then take them out to be cooled, and so lay them in Barley Straw . The Grape will last a whole year together, if you gather them before they be thorough ripe, and drench them in hot water that has Allome boiled in it, and then draw them forth again. The Ancients were found,

**"To put Salt to Wine, to make it last longer."**

**As Columella shows. They took new Wine and boiled it till the third part was wasted away. Then they put it into vessels, there to preserve it for their use this year following. They put a pint and a half of this Liquor thus boiled, into nine Gallons of new Wine unboiled. And after two days, when these Liquors are incorporated together, they Wax hot, and begin to Spurge. Then they cast into them half an ounce of Salt beaten small. And that made the Wine last until the next year. Theophrastus and Pliny write,**

**"The fruit of those Palm trees which grow in Salt places, are fittest to be preserved."**

**As those which grow in Judea, Cyrenian Africk, because those countries especially do afford Salt and sandy grounds. For Salt is a great nourisher of these kinds of fruit, and they are preserved long, even by their own saltiness. So that the saltier the places are where they grow, the better will the fruit be preserved. So likewise that kind of Pulse which is called,**

**"Cider, is preserved by its own saltiness."**

**Without any other dressing. For the nature thereof is, to have a saltish juice within it. Whereby it comes to pass that whereas all other Pulse are subject to Corruption, and have some Vermin or other breeding in them, only this kind does not engender any at all. Because of the bitter and sharp saltiness of the juice that it has in it, as Theophrastus writes. Didymus likewise writes that,**

**"Beans will last long in Saltwater."**

**For, if they are Soused in Seawater, they will continue long without any blemish. Pliny also shows, that,**

**"Garlic may be preserved in Saltwater."**

**For if you would have Garlic or Onions to last long, you must dip the heads thereof in warm Saltwater. So will they be of longer continuance, and of a better taste. So**

**"Cucumbers are preserved in Brine."**

**As the Quintiles affirm. For if you preserve either Gourds or Cucumbers in Brine, they will last long. So will they be of longer continuance, and of a better taste. So,**

**"Apples and Myrtles may be preserved."**

**By lapping them up in Seaweed one by one, so that they may be covered all over with it, and not touch one another, as Apuleius shows. If you have no Seaweed, then you must lay them up close in Coffers. Aristotle is of opinion, that the fruit of the Myrtle tree need not to be lapped up in Seaweed, thereby to keep them from falling off the tree, because they will stick on of themselves till they are thoroughly ripe. But the blades of them are preserved by wrapping Seaweed about them. And the vapor of the Seaweed thus wrapped about the blades, will keep the juice of the fruit from being changed to any further maturity, and cause it to continue long at one stay. And this is by reason of the saltiness of the Seaweed, whereby it does intercept and dry up that moisture which should be derived into the fruit, to ripen it. We may learn also to preserve,**

**"Olives in Brine, to have them good a year after.**

**Marcus Cato says, that those kinds of Olives which are called Orchites, may be well preserved, if they are laid up in Brine while they are green. Or else, if they are pound with Mastick. Columella says, that the Olives which are called Orchites, and those which are called Panfiae, and the little round Olive called Radiolus, are to be knocked and beaten, and so cast into Brine. And then to be taken out of the Brine and squeezed, and so cast into a vessel together with the blanched seeds of Mastick and Fennel. Then take a good quantity of new Wine, and half so much strong Brine or Pickle, and put it into the vessel. And so the fruit will be well preserved. Or else, you may cast your Olives whole into a vessel, and put in strong Brine among them till the vessel is brim full, and so take them out for your uses when occasion serves. There are certain kinds of black Olives, called also Orchites, which Cato says, are thus to be preserved. When they are dry, cast them into Salt, and there let them lie for the space of two days. Afterward take them out and shake off the Salt, and set them in the Sun for two days together. And so they will be preserved. Marcus Varro reports the very same experiment out of Cato. Columella says, while Olives are yet black and unripe, you must tuck them off the tree with your hand on a fair Sun shining day. And cull out the sound ones from those that have any blemish. And into every Peck and a half of Olives, put a Quart and somewhat more of whole Salt. Then put them into Wicker baskets, and there let them lie in Salt thirty days together, that the Lees or Dregs may be still dropping forth. Afterward put them into some tray or such like vessel that you may wipe away the Salt with a Sponge. And when you have done so, barrel them up into a Hogshead full of new Wine or else of Sodden Wine, and by this means they will be long preserved. Didymus teaches to make Condite or preserved Olives in this manner. When Olives are almost ripe, you must gather them with their stalks and all. Then wash or Steep them a whole day in cold water, and afterward lay them a drying upon Wicker Lattices, handling them very gently. Then put them in the bottom of a vessel, and cast a good store of Salt among them. And into five Pecks of Olives, you must put in four Gallons and two Quarts of Brine, and two Pints and a half of Vinegar. And when you have filled up the vessel, shake them together, that the Liquor may swim on the pot. Columella, Palladius and diverse others do cast the Olives into Seawater, and there Steep them seven days together, and when they have taken them forth, they Condite them with Brine, and so put them up into some other vessel.**

## **Chapter XII**

**"That things may be specially well preserved in Oil and Lees of Oil."**

**Oil, and especially Lees of Oil, do excellently conserve things, defending them both from the injuries of the air and of animals. Cato does in short enumerate the faculties of Lees of Oil, he subjects the barn stores with Lees of Oil, that Mice may not eat his Corn. That also,**

**"He may preserve his grain in his Garner,"**

**He daubs the pavement and walls thereof with clay, confected with Lees of Oil.**

**"Moths may not eat his cloths,"**

He sprinkles them with Lees of Oil.

"Seed, Corn, lying in the fields may be kept from erosion by animals."

If it is kept in Lees of Oil, as also Whetstones, shoes, Brazen vessels from Rust, all household stuff made of wood, potters vessels and the like. The same Cato says,

"That Myrtle branches may be preserved with their berries on, in Lees of Oil."

Bind these or any of the like nature into bundles, put them into a vessel of Oil Lees, and that the Oil cover them, then cover the vessel. Didymus says,

"That Roses may be kept in Lees of Oil."

Fresh and vigorous, if they are covered over with this Liquor.

"If you would preserve Fig tree branches with their fruit in Lees of Oil."

Bundle them up with their leaves and all, and put them in a vessel of Oil Lees, as we said of Myrtle. But if you would deep dry Figs from Corruption, lay them up in a potters vessel wet with the Lees of Oil Decocted.

"Olives may be preserved in Oil,"

For when they have lost their color they may be gathered with their stalks preserved in Oil, and a year after they will represent their green color. And if you sprinkle them with common Salt they will pass for new ones.

### Chapter XIII

"How Apples may belong conserved in Sawdust with leaves or Chaff or Straw."

The Ancients have invented many trees, whose fruit may be long preserved in their own Sawdust because of its dryness. Now every fruit is best kept in its own leaves Dust, and the like, as we have said of Olives which are best kept in Oil, Grapes in Wine, etc.

"Oranges may be kept in Cedar Dust."

As Palladius asserts, who states that many have experienced it. In the like manner,

"Quinces may be long kept in Dust,"

Because as Democritus states, the dryness of the Dust preserves them from Putrefaction. They may be also kept in Wool, fine Tow, or the like in chests.

**"The fruit of the Fir tree may be long kept in Dust."**

**Many Diffuse the Sawdust of the Poplar, or Fir tree, among their fruit for their preservation. Apuleius says, you may lay them involved with fine Tow into a basket, and they will keep.**

**"Pomegranates may be kept from Putrefaction in Oak Dust."**

**Columella would have the Dust first Steeped in Vinegar, and then they laid in it. Mago would have us first strew a new potters vessel with the Dust, then lay in the Apples, the strew another layer of Dust, and another of Apples, until the vessel was full. Which we must shut and daub close up. Beritius would have the Dust first Infused in Vinegar.**

**"Grapes may be kept in Dust."**

**Some keep green Grapes in dry Poplar, for Fir Dust. Didymus would have them reposed in boxes overlaid with Pitch. In the dry Dust of the Pitch or black Poplar tree. Some preserve fruit in Chaff, which by its innate frigidity, either keeps the frosty rigor unmelted, or by its genuine dryness keeps all things from Putretude . Or by being void of all qualities keeps fruit in proper quality. And first,**

**"Oranges may be kept in Chaff."**

**As Palladius avers, or in small Straw . And the same says, that,**

**"Quinces may be preserved in Chaff"**

**As also in small Straw , as Pliny attests, who asserts also, that,**

**"Apples may be kept in Chaff."**

**Or Straw , they being laid upon in it. Palladius says, that**

**"Pears will keep long in Chaff, Medlars also."**

**If they are gathered on a clear day, half covered with Chaff, and not again touched. Palladius says, that**

**"Pomegranates may be kept in Chaff,"**

**If they are not moved, or touched after their repose.**

**"Grapes may be kept in Chaff."**

**The clusters should be severally laid along the pavement, so that they touch not each other, with Lupin Straw under them if possible. For it is dryer and hardest, and an enemy to Mice. But if not then Bean Straw, or such Pulse. But if none of these, then dry Hay cut small. Palladius says, that,**

**"Nuts will keep in Straw,"**

**If Almonds cannot be easily Excoriated, cover them with Chaff and Straw, and you may effect it.**

**"Onions may be kept from Putrefaction in Barley Straw."**

**First put them into hot water. Dry them in the Sun. That done, lay them so in Straw that they touch not each other. Palladius says that,**

**"Chestnuts may be preserved."**

**In small Barley Straw, or in their own leafs. As also,**

**"Quinces in Fig leaves."**

**Democritus would have them involved in leaves, and daubed up with clay. Palladius says, Apples may be kept from Putretude in Fig leaves, who also avers,**

**"That Oranges may be preserved,"**

**In their own leaves, if they be laid severally. He also says,**

**"That Apples may be kept long in Nut leaves."**

**And Apuleius says, their color, odor, and grace, will be hereby preserved, and that best if they be laid in fresh, not falling leaves. As also,**

**"Figs may be kept in the leaves of Vervine without Putretude."**

**Palladius would have them put in an oven, and while still hot imposed in their own leaves and recoded in a pot. Columella would have dry Figs cast into a Pitched vessel with dry Hay in it and upon them. We may also,**

**"Preserve Cherries in the leaves of Winter-savory,"**

**If we first cast the leaves, then the Cherries into a vessel, and so by course, or if we after the same manner lay Cherries in Reed leaves. Thus also,**

**"May Jujubees be kept in their own leaves,"**

**Or else they may be cut of with their boughs and suspended. Thus also,**

**"May the Myrtle and its berries be preserved,"**

**Either in a close vessel, or in Lees of Oil. Thus also may,**

**"Quince pears be long kept in their own leaves, and Nuts in their leaves, but the leaves must be dry, Wheat may be kept in Herbs."**

**Tarentinus would have it imposed upon dry Wormwood and Semper-vive. But dry Quince leaves and small sand are better. Which must be laid in layers among the grain. It is best to cover the store with Coniza, add after ten measures of grain, to lay another layer of Coniza till all be deposited. For thus the whole will not be only free from Putretude for many years, but keep its due weight.**



**"Barley may be kept in dry Bay leaves."**

**Dry Grass with Mint mixed with Bran, preserve Barley special well. Some mix Cummin and Salt together, and make them into dry masses for the preservation of Barley.**

## **Chapter XIV**

**"How Fruit may be mixed with many things for their better preservation."**

**And now that we may not further protract our speech, we shall from ancient examples show how fruit by Immersion into several things, may be long kept from Putretude. And first,**

**"Oranges in Barley Putrify not."**

**But if you lay them on hot Barley bread, they Putrify quickly. Palladius says,**

**"That Quinces laid in Millet seed, endure long."**

**For he thinks that Millet seed corrupts not in many years, and so what is reposed in it cannot speedily Putrify. Democritus says, Barley is better, being dry. But always provided that they are not laid near tender and Fugacious fruit, for they will Vitiate them by their Acid vapor, and Putrify Grapes if they are near them.**

**"Apples may be also kept in the same seed,"**

**As Pliny is of mind. But Apuleius says a heap of Barley is better. But you must always mind to repose each kind in its proper continent and place. Because if diverse kinds be occluded together, they Vitiate sooner. Wherefore the Wine that is Expressed out of several kinds of Grapes, is not so firm as the simple and sincere.**

**"Pears will keep among Corn."**

**For as Palladius says, the Siccity thereof is notably preservative.**

**"Mushrooms may be kept in Millet seed."**

**The Vesuvians also deep them in dry sand, till new ones come.**

**"Pomegranates may be kept lain in Wheat,"**

**If they are first dipped into hot water, then Recoded in Wheat, till they become Rugous.**

**"That Grapes may be kept long and well."**

**If they are suspended in a Garner. For the Dust that rises up of the Corn when moved, causes long**

duration in Grapes .

"How Corn may be long preserved,"

Tarentinus says, the ashes of Oak. Others dry beast Dung, strewn on Corn preserves it. But small sand subacted with Lees of Oil is better. For this corrupts all Vermin and keeps the Corn more dense and solid. Perfrigerated Argil is best of all, for it will keep Corn thirty or forty years from Corruption. You may let it through a straight Sieve when you use it.

"Pulse will keep long."

If they are sprinkled with Vinegar mixed with the juice of Laser.

## Chapter XV

"How other things may be preserved from Putrefaction."

We shall here recite what other things, though vile, may be preserved, and so make way for further inquisitions.

"Quicksilver will preserve things from Putretude."

As fruit and the like, for we have often put fruit into a fit vessel, and cast Quicksilver upon them, and so preserved them long and well.

"Flesh hung on a Brass nail will keep long."

For Brass is so Styptical and Exiccative, that the flesh it passes through Putrifies not.

"How a dead carcass may be kept long."

First let the side of the body be opened, and the carcass Exenterated. Let the skull be opened and the brains taken out. Let the Papills be subtracted, as also the Privities with the Pith of the backbone. Then hang up the body by the feet for three or four hours. Then wash it with a Sponge. dipped in Vinegar and Aquavita. Then let it dry. When done, strew it with unquenched Lime, Alome, and Salt. Let it hang for two days in the smoke of Myrrh, Bay, Rosemary, and Cypress in a dry and open place. Then make a mixture of unquenched Lime five pounds, of burnt Alome one pound, good Salt two pound, of Aloes and Myrrh half a pound. Of Aloes wood half a pound, of the Oil of Spicknard three ounces, of the powder of Rosemary flowers five, of burnt green Brass and Calcanthum two, of the best Theriack four, of the dust of Cypress half a pound, of dried Saffron on ounce, of the seeds of Coloquintida three and a half, of Antimony beaten to powder one and a half, of the ashes of Wine Lees five and a half, of Musk half a Drachm, of Amber two. Let all be diligently Brayed and mixed together, and strewn upon the body which must be for three days together strongly rubbed , in an open and dry place. This we admonish, that in fat bodies the fat of the abdomen, buttocks, hips, muscles of the legs, thighs, and all other places must be first abstracted.

**"Things may be also preserved by Balsam."**

**But seeing we can compass not true Balsam. Or if there is any, it is exceedingly dear. We are glad to make artificial Balsams, as we shall show in due place.**

## **Chapter XVI**

**"How Diverse sorts of Bread may be made."**

**We have spoken of preserving fruit and other things. It remains to show how we may use those we have kept. Among the rest, we shall teach you concerning those things that are most necessary for daily use, as for many kinds of Bread, Wine, Vinegar, and Oils. That not only the householder may provide for himself with small pains in mountains and deserts, of all those things almost we have spoken of. But we will begin with Bread, and see what our forefathers used in case of necessity. I shall let pass those common things, as Spilt, and Bean Corn, and Amel-corn, Typh-wheat, Panick, Sesamum; being all well known. But first,**

**"To make Bread of Chestnuts."**

**Dioscorides says, there is a kind of Thistle commonly found in the waters, that only in rivers brings forth a certain seed as big as a Chestnut, with three points, membranous, full of with Pith, that tastes like Chestnuts. They call them Water Chestnuts vulgarly, and the inhabitants use them in meats, as they do Chestnuts. Pilgrims make Chapelets of them. The Thracians that dwell by the River Strimon, fat their Horses with this Thistle when it is green, and of the same seed they make Bread to eat. Moreover, in places where they grow among us, the inhabitants when provision is dear, make Bread of them, as at Ferrara they do of Chestnuts and the Brutii roast them in the embers and eat them for Juncates. Almost in the same manner,**

**"To make Bread of the Lote-tree."**

**Theophrastus teaches it. The Lote-tree grows in plain ground, where the countries are overflowed with water. The fruit is like a Bean naturally, but less and more slender. That which grows on the head comes forth promiscuously, as Beans do many and very thick together. When the Sun sets, it closes, and opens when he rises, and springs up above the water. The head is as great as a Poppy head, where it grows in Euphrates. The Egyptians lay those heads on heaps to Putrify, and when the shells are Putrified, they wash them in a river, and part the fruit from them, and dry it, and break it and make Bread of it, and eat it. Pliny, There is also Bread made of the seed of it, like to Millet seed, in Egypt by the Shepherds, and they Knead it with water especially, or with Milk. They say that nothing is more wholesome than that Bread, or lighter while it is hot, but cold it is harder to digest and becomes heavy. It is certain, that those who live upon that are never troubled with Dysentery, Tenasmus, or any diseases of the belly. And therefore it is one of their remedies. For it was of old a custom;**

**"To make Bread of Dates,"**

Which Pliny, writes of. Dates that are very dry of Thebes and Arabia, that are slender and very lean, with a continual vapor they are Terrified, and are covered rather with a shell then a skin. In Ethiopia it is crumbled (so great is the Draught) and like Meal it is made into Bread.

"Bread of the Mulberry-figtree."

In Caria and Rhodes there is a great Fig of Egypt, or increase of the Sycamore tree. And in the neighboring places where there is little Wheat, the people for want of Corn, use it for Bread, and for all Bread Corn. So great and continual plenty is there of that Apple, and abundance of Bread is made of it pleasing to the stomach. But it affords little nutriment, and we might make the same if we would. We find it in writers of Husbandry,

"How we may make Bread with Leaven,"

Out of Didymus some add Nitre, for Nitre makes Bread more crumbly, as it does flesh also. Some the day before they make their Bread, cast Grapes into the water, and the next day when they will make their Bread they take them away, for they swim above the water, and they press them out, and use the moisture pressed forth for Leaven, and so they make their Bread more pleasing. If you would have Leaven last you all the year, when the new Wine has boiled in the vessels, skim off the froth that boils on the top, and mingle with it Millet-meal, and work it well together, and make morsels of it, which dry in the Sun, and lay up in a moist place. And you may take a sufficient quantity and use it for Leaven.

## Chapter XVII

"Diverse sorts of Bread made of Roots and fruit."

Now we shall proceed to other kinds of Bread, found out in our days, that are of no small profit to us when Corn is dear.

"How to make Bread of the Roots of Cuckow-pint,"

the root of Wake-robin, when it is not too Acrimonious is eaten and desired in meats. Dioscorides says, the Decoction was drank, as not being over sharp. Galen, that it was eaten as Rape-roots, and in some countries it grows more Corroding. To prepare it correctly, pour out the water of the first boiling, and presently cast it into other hot water. In Cyrene those roots are otherwise then among us, for there it is no physical root, and is not Acrimonious at all, so that it is more profitable then a Rape-root. Also our forefathers, when Corn was dear used this root in meats with great profit. Casar de bello civili, Also there is a kind of root, found by them that were with Valerius, which is called Chara, which mingled with Milk relieved a Soldier that was hungry, and it was made up like to Bread. There was great plenty of this root, and of it Bread was made. When those of Pompey, his side objected to our Soldiers that they wanted of food, they would commonly throw these at them, that they might deceive their expectation. And a little after the army used this and were very healthful. And in Dioscorides in the false names of Simples, Cuckow-pint was of old called Chara. With us it is so Acrimonious that we scarce can endure to touch it with our tongues. But I shall open the reason

how excellent Bread may be made of it, and if I may so so, better then Wheat Bread. The great roots are made clean, and they are cut into small thin plates, for the thinner they are cut, the sooner will they become pleasant, and they must boil in vessels of hot water, until you perceive the water grow sharp and the roots somewhat sweet. Pour out the former water, and pour in fresh, then boil it again, till the water becomes sweet, and the root when chewed, has no Acrimony in it. Then take them out of the water, and put them upon Linen cloths, extended and hanging up until they be dry, then grind them in Handmills and the Meal will be exceedingly white, which by itself and with a third part of Wheatmeal added to it, will make most pure Bread and well tasted. There are other ways to make it sooner. When you have obtained this art, you will be exceeding glad I am very certain of it. For with great pleasure,

"Bread of Asphodils is eaten."

This is so fruitful of Round-heads with us, that no plant has more, for often eighty heads will be heaped together. Moreover, mountains and seashores are full of them, that it may be truly thought to be made for mans meat. Pliny, the Daffodil is eaten with the seed and head Terrified. But this roasted in the embers as Hesiod affirms, is eaten with Oil also Braised with Figs, it is eaten with great pleasure. These Round-heads are like to Navews of moderate bigness. So says Galen also. But with us they are so unpleasant, and Acrimonious in taste, that a man cannot eat them. And Sows digging them up with their snouts, will hardly feed on them, no not when we want Corn can we eat this in our greatest hunger, it was the poor fair of frugal Antiquity. But by boiling, the sharpness of it becomes more mild, and the heat of it more tolerable, as we said of Cuckow-pint. It will be sufficient to satisfy a mans hunger, as of old it was used. As Pliny says, we have made most wholesome Bread of these mingled with Meal, especially for men wasted and in Consumptions, also

"Bread is made of Rape-roots, Turnips, and Skirworts."

For of those boiled and cooked, first cleansed from all Excrements, a most commendable Bread may be made, as I have tried. But Meal must be mingled with them to a third part, or else half as much of one, and the other as we shall show a little after. And not to be tedious, the same way-Bread to eat, may be made of all Navews, roots, or bulbous-heads. Also there is made,

"Excellent Bread of Gourds,"

For Gourds may be had very cheap, and they make savory Bread with Meal, and so the Bread is greater, for this is the greatest of all fruit. For with a very little Meal in time of famine we may feed many men, and not only use it for need, but for dainties also. For seasoned with Sugar, and prepared for men's Pallets, and to quench feverish heats, they are carried about everywhere to be sold. The way to make them up is this. Take great round Gourds, and fully ripe, and cut into many pieces the dry skin, and the pith must be taken from them with a knife. Put them in a Kettle of boiling water, and boil them, for by long boiling the grassy greenness, and the rank smell and loathsome taste are taken away, and they will smell better and taste and nourish better, and will last as long as Bread. Being now brought to the form of an Ointment, press it through a Linen Strainer with your hands, that if any parts of it be not well boiled or any woody pieces be there, they may be kept back by the narrowness of the Strainer. To this mass, add a third part of Meal, and make them into Bread together, which will be pleasant to eat daily. I will not have you to eat your fill of it, but if you it moderately it will profit much. When it is new it is excellent, but stale, it is not so sightly nor dainty. I have shown you the way how you must use such things of superfluous moisture, now do you learn wisely to do it.

## Chapter XVIII

"Diverse ways to make Bread of all sorts of Corn and Pulse."

In the ancient days they made Bread of diverse kinds of Corn and Pulse, it would be needless to repeat them, for you may find them in the books of the Ancients, and there can be no error in making them. In Campania, very sweet Bread is made of Millet. Also the people of Sarmatia are chiefly fed with this Bread, and with the raw Meal tempered with Mares Milk, or Blood drawn out of the veins of their legs. The Ethiopians know no other Corn then Millet and Barley. Some parts of France use Panick, but chiefly Aquitane. But Italy about Po, add Beans to it, without which they make nothing. The people of Pontus prefer no meat before Panick. Panick Meal now adays is neglected by us and out of use, for it is dry and of small nourishment. Of Millet Bread and cakes are made, but they are heavy and hard of digestion and clammy to eat. Unless they be eaten presently when they are newly baked, or hot, else they become heavy and compact together. Of the Indian Mais, heavy Bread is made and not pleasant at all, very dry and earthy next to Millet. Like to this is Bread called Exsergo, that is also void of nutrimental juice. There was also of old Bread called Ornidos, made of a certain seed of Ethiopia, so like Sesamum that it is hard to know them asunder. Also,

"Bread is made of Lupines,"

The best kind was known also to the Ancients. For Didymus teaches how Lupines will grow sweet, being three days Infused in river or Seawater, and when they grow mild they must be dried and laid aside, and then the Meal of them mingled with Barleymeal or Wheatmeal is fit to make Bread. But we make it thus, first the Lupines are ground in Mills, and are made into Flour. Fifty pounds of these are put into a wooden vessel, and fair water is cast upon them, that it may swim four fingers breadth above them. And it must be often stirred with a wooden stick, then let it settle till the water grows clear, and the Meal sinks down, then strain the water well, that no Meal be lost. And pour on water the second time, and stir it as before. Do so the third time till the Meal and water become sweet, which will be done in one day if the water be often changed. As that is done, put the Meal into a Linen cloth laid abroad, that the Meal may be separated with a wooden slice, and the water may run away through the cloth, and the Meal may dry the better upon the cloth. In the meantime boil two pounds of Rice, and being boiled mingle them with the Lupines, divide the whole into two parts, and mingle one with the Leaven and a hundred pounds of Wheatmeal, and make Bread of it. Let the other be set by with the Leaven till the next day, which being mingled again with Wheatmeal, will make excellent Bread, and will not taste of Lupines. But you must use all diligence in the making of it, for if you make it not of the best Meal, the Bread will be naught, wherefore the work lies in the right preparation of it. For the worse Corn or Pulse you make it of, the more Corn must be taken to prepare it. After this manner it may be made of Tares and Vetches, and the favour of them is Dulcified with water and mingling Meal with them. Bread is made also of Peas, Chiches, Tares, Lentils, Beans, and chiefly of Acorns. But it is not unprofitable to make,

"Bread of Herbs,"

If a man cuts the Herb Clot-bur small and grind it in a mill to very fine powder, and add as much or a third part of Wheatmeal to it, it will make good Bread, that may be eaten when there is a famine. And I



have heard that the poor eat it in some places, and it hurts them not, and that some in a Siege have lived a month with such Bread.

## Chapter XIX

"How Bread may be increased in weight."

Now I shall show how Bread may be augmented. A thing very strange and profitable, not only to help in time of need, but it is good for the householder, for with little Meal he may nourish many, and fill their bellies. And that three ways. For there be things that added to the Corn, will increase the substance of the Bread. Other things are dry, and of a clammy nature, that will thicken the element by Refraction into the substance of Bread. The last way is the life of the heat of it, whereby it waxes and grows as if it were alive. As much as is lost by the bran taken from it, is added to it, by casting water on it when it is ground, and in the other workmanship. Moreover, the baking of Bread takes away a tenth part and a half of the weight. Let us see how our ancestors did by some earth or,

"Chalk make their Bread more weighty and white."

Pliny teaches that Spelt will grow white by a kind of Chalk, thus. Let this Spelt be of Beer-corn, which he called a seed. The Corns of it are Bruised in a wooden Mortar, for it will be spoiled and consumed by the hardness of a stone. The best as it is well known, is made by those that are condemned to Bray in Mortars for their punishment. For the best there is an iron box, the Hulls being then beaten off, again, with the same instruments the Marrow of it being made bare, is broken, so are there made three kinds of this Spelt-meal, the finest, the second sort, and the third that is the coarsest. But yet they are not white, which makes them excellent, yet now are these preserved at Alexandria, after this, (it is very strange) Chalk is mingled with them, that passes both into the body and the colour of them, and makes them tender. You shall find this between Puteoli and Naples, on the hill called Leucogaeum. And there is extant a decree of Divus Augustus, wherein he commanded to pay them at Naples yearly 20000 Sestertia out of his treasury, drawing his colony to Capua, and he assigns the cause, by reason that they of Campania affirmed that Spelt-meal could not be made without that stone.

"Rice makes Bread weigh."

It neither corrupts the taste or goodness of the Bread, but increases both, and it brings it closer by one eighth part, for by a continual turning it, it will retain volatile Meal. And from hence you shall see it Coagulate, and when it is Coagulated put Leaven to it. But it must first grow cold, lest the force of the Coagulation should be hindered. To Bind this Fugitive servant fast, add so much Wheat-meal as may fasten it well together, till you see there is enough, and you shall find it increased to the weight desired. By this example,

"You may increase the weight of Bread with Millet."

This is easily done, for it is dry, crumbles, and will not hang together, and is weak. Let it be Bruised with a wooden Pestle, and sifted through a Sieve till the Hulls be parted, as we see it done at Rome

and at Florence. By this we hold it, that it fly not away by its hungry dryness. Then we mingle it with Wheat, and the air reflects back, and it will be converted into the substance of Alica, that you will think nothing taken from the taste, color, or goodness, nor yet added to it. Nor will it be unpleasant to see.

"Bread weighs more by adding Milk to it."

This is an experiment of great profit and praiseworthiness, for it adds weight and whiteness to Bread, and makes it short, being put in instead of water while it is hot. I never tasted anything more pleasant or tender. I thought fit to add this for the singular virtue of it, adding also such things as we know to be necessary for this art. But truly that is admirable, by the same,

"Wheat to increase the weight of Wheat."

This is done without any addition, for if we would, we could do this with many and almost infinite things, with any small addition. But in this a Leaven is drawn forth of the very substance of the Wheat, which being strained, cleansed and added to the same again, either by increasing the substance of it, or by retracting the air into its substance, it will be much augmented. Giving you this warning beforehand that the augmenting heat must not be diminished, but preserved and increased, that all may depend on this. But an admirable work of nature, and full of wonder it is, how it may be that,

"Wheat may increase out of itself."

I cannot discover this, how it came into my mind, lest it should be made public to every common fellow, and ignorant animal. Yet not to conceal it from ingenious men, I shall hide it from these, and open it to those. That our forefathers knew it not is clear, because there is no such thing mentioned in all their works of making Bread. The whole business consists of this. That the Wheatmeal may be managed with the life of its heat, which is the offspring of Celestial fire. By nature it is of such Tenuity, that being raised with its heat, it will make the lump swell so much, that it will come up to the top of the vessel. The next day, cast it into a Hutch, and add more Meal to it, which again being raised by its heat, and coming back again by the same, and meeting with the lump as flowing back again, it joins into the Refracted Elements, and so into Clotters of Meal. Do this thrice or four times, and so you may increase it continually, and this must be done in a stove, that the dewey Spirit may be fostered. I thought good to tell you also before, that you must not prick the lump, lest the generative blast should breath forth, and fly into the air, for so you will lose your labor. And there must not want presently a dewey vapor, which being carried into the air, and made to drop, may moisten the lump, so you will rejoice at the wonderful increase. But you must be cunning in the manual application. Pray do not destroy by your negligence, what was invented by the careful ingenuity of those that tried it.

## Chapter XX

"How we may long endure hunger and thirst."

The Ancients had some compositions to drive away hunger and thirst, and they were very necessary

both in times of famine and wars. Pliny says, some things being but tasted, will abate hunger and thirst, and preserve our forces, as Butter, Licorice, Hippace. And elsewhere, Scythia first produced that root which is called Scythia, and about Baeotia it grows very sweet. And another, that is excellent against convulsions, also it is a high commendation of it, that such as have it in their mouths feel nor hunger nor thirst. Hippace among them does the same, which effects the same in Horses also. And they report that with these two Herbs the Scythians will fast twelve days, and live without drink also. All which he translated out of Theophrastus first book. The Scythian Hippace is sweet also, and some call it Dulcis. It grows by Maeotis. Among other properties, it quenches thirst also, if it be held in the mouth. for which cause both with that, and the other called Equestris, men say, the Scythians will endure hunger and thirst twelve days. Hence it appears that Pliny translated all this out of Theophrastus. But I think he erred. For Hippace signifies Cheese made of Mares Milk, and is no Herb. Theodorus translated it Equestrem, as it were a root like Licorice, fit to drive away hunger and thirst. For Hippocrates says, the Scythian shepherds eat Hippace, but that is Mares Cheese. And elsewhere, the Scythians pour Mares Milk into hollow vessels of wood and shake it, and that froths with churning, and the fat of it they call Butter, which swims to the top, that which is heavy sinks to the bottom, they separate this and dry it, and when it is dry, they call it Hippace. the reason is, because Mares Milk nourishes exceedingly, and is as good as cows milk. Dioscorides, the West Indians use another composition also,

"To endure hunger and thirst."

Of the Herb called Tobacco, namely of the juice thereof, and the ashes of Cockle shells they make little balls and dry them in the shade, and as they travel for three or four days they will hold one of them between their under lip and their teeth, and this they suck continually, and swallow down what they suck, and so all the day they feel neither hunger, thirst, nor weariness. But we will teach another composition, which Heron mentions, and it was called,

"The Epimenidian Composition, to endure hunger and thirst."

For it was a Medicament that nourishes much, and abates thirst, and this was the food the besiegers of cities and the besieged also lived on. It was called Epimenidian Composition, from the Sea-onion called Epimenidium, that is one of the ingredients of that composition. It was made thus, the Squil was boiled and washed with water and dried, and then cut into very small pieces, then mingle Sesamum a fifth part, Poppy a fifteenth part, and make all these up with Honey, as the best to make up the mass, to mitigate it. Divide the whole, as into great Olives, and take one of these about two of the clock, another about ten, and they felt no hurt by hunger that used it. There is another composition of the same, that has of Athenian Sesamum half a Sextarius, of Honey a half part, of Oil a Cotyle, and a Chaenice of sweet Almonds Mundified. The Sesamum and Almonds must be dried, and ground, and Winnowed, then the Squil must have the outsides taken off, and the roots and leaves must be cut into small pieces, and put into a Mortar and Bruised, till they be well Mollified. Then you must make up the Squils with the like quantity of Honey and Oil, and put all into a pot, and set them in cold, and stir them well with a wooden ladle, till they be well mingled. When the lump is firm, it is good to cut it into little morsels, and he that eats on in the morning, another at night, has meat enough. This Medicament is good for an army, for it is sweet, and so fills a man and quenches thirst. We had this in an old Scholiast, a manuscript upon the book of Heron, in the Vatican Library. I saw the same composition in Philo, in his fifth book of wars, where he describes such like other things.

## Chapter XXI

"Of what fruit Wine may be made."

Now we shall speak of fruit, of which Wines may be made. And first our ancestors did do thus, but they had two ways, for some were for Physicks, which are found plentifully in Physick books. Others again were for ordinary use, and they were diverse, and almost infinite, according as the differences of places and nations are. For what is granted one, is denied another. First,

"Wine of Dates."

Pliny says that in the East they make Wine of Dates, and he reckons up fifty kinds of Dates, and as many different Wines from them. Cariotae are the chief, full of juice, of which are made the principal Wines of the East, they are naught for the head, and thence they have their name. The best are found in Judaea, chiefly about Jericho, yet those of Archelaiis are well esteemed, and of Phaselis, and of Libias, valley's of the same country. The chief property they have is this, they are full of a white fat juice, and very sweet, tasting like Wine with Honey. The Wines will make one Drunk, and the fruit also eaten largely. Dioscorides teaches thus, Put ripe Dates called Chydeae, into a Pitcher with a hole at bottom, and stopped with a Pitched Reed. Shut the hole up with Linen, and to forty Sextarii pour on three Gallons of water. If you wold not have it so sweet, five Gallons will be sufficient to pour on. After ten days take away the Reed with the Linen. Take the thick sweet Wine and set it up. Also Wine is made,

"Of Figs."

Sotion relates it thus. Some make Wine of green Figs, filling half the vessel with them, and the other half to the brim they fill with fair water, and they try still by tasting. For when it tastes like Wine, they strain it and use it. It is made, says Dioscorides, of ripe Figs, and it is called Catorchites or Sycites, Chelidonian or Phaenician Figs called Caricae, are Steeped in a pot with a hole in the bottom with a Pitched Reed, and the hole stopped with Flax. To forty Sextarii you must pour on three Gallons of water, and if you will not have the Wine so sweet, pour on five Gallons and it will do. After ten days the Liquor is taken, and again the third time also the same measure of water wherein the Figs are infused, is poured on. And in the like manner, after four or five days it is drawn off. Some to Fix Amphorae thereof add ten Sextarii of Salt, that it may not early corrupt. Others put Fennel and Thyme in the bottom, and the Caricae on the top, and so in order, till the vessel be full. Also men make,

"Wine of Pears."

Which from the Greek word for Pears is called Apyres, and from the Latin Piery, Palladius says it was thus. They are Bruised and put in a very course bag of Canvas, and pressed with weights, or in a press. It lasts in the winter, but in summer comes it sour. Dioscorides will not have the Pears too ripe. The same way is made,

"Wines of Pomegranates."

Sotion makes Wine of the grains of the Pomegranate, taking away what is in the middle of the grains.

Palladius put the ripe grains well purged into a Date pail, and presses them out with a screw Press, then boils them gently to half. When it is cold, puts it into vessels that are Pitched or Plastered with Gypsum. Some do not boil the juice, but to every Sextarii they mingle one pound of Honey, and put all in the said vessels and keep it. There is made,

"Wines of the Lote-tree fruit."

There is a kind of Lote without any inward Kernel, which is as hard as a bone in the other kind. Wine is pressed also out of it like Mead, that will not last above ten days. Nepos says the same from Pliny, Athenaus from Polybius. Wine is made of the Lote Steeped in water and Bruised, very pleasant to the taste as the best Mead is. It is drunk pure without water also, but it will not last above ten days, wherefore they make but little for use to last only so long. Vinegar is made also of it. And yet not much or good enough, yet there is made,

"Wines of Myrtle berries and Cornels,"

Out of Sotion, who of the berries of Myrtles and Cornels when they are fresh, pounded and pressed out, made Wine. Now I shall show how we may make,

"Wine of Corn."

Drink is made of Corn. Dioscorides teaches to make Beer of Barley, also a drink is made of Barley called Curmi, they use that drink often for Wine. The like drinks are want to be made of Wheat. In Hiberia toward the west and in Brittany, whence Pliny, of Corn drink is made. Beer in Egypt, called Zythum, in Spain, Caelia and Ceria, Beer in France and other provinces. In Aristotle's book of Drunkenness, those that drink Wine made of Barley till they be Drunk, fall upon their backs, they call that Wine Pinum, but those that are Drunk with any other kind of drinks fall any way, on the right, or left hand, forward or backward, but those that drink Pinum, fall only upon their backs. Wine made of Barley, they call Brytum. Sophocles in Triptolemo, and Aeschylus in Lycurgo. But Hellantcus says, Brytum is made in farms out of roots. Hecateus says, that the Egyptians grind Barley to make a drink, and that the Macedonians drink Brytum made of Barley, and Parabia made of Millet, and Rice, says Athenaus. Also Wine is made of Rice. For says Aelianus, when an Elephant fights in war, they give him not only Wine of Grapes, but Rice also. Now the same drink is made in the northern climates of Corn, and they call it Biera, but they put Hops to it, for it cannot be made without. Barley and Wheat are infused in the Decoction of it. We see that of Barley and Wheat Steeped in water a drink is made that tastes like Wine, and of them I have made the best Aqua vita. But these drinks of old were physical, rather then to use as Wine. But I shall show how some drinks that are so like Wine in taste, that you would think they were Wine indeed. And first,

"Wine of Honey."

To nine vessels of water put eighteen pounds of Honey, into Brass Caldrons conuered with Tin, and let them boil a long time, stirring all with wooden Ladles, and wiping way the froth that rises with little brushes, pour it out and put it into a Wine vessel, then take two pounds of red Wine Tartar, and boil them in water till they be dissolved. To which add an eighth part of a vessel of Vinegar, that the loathsome and displeasing taste of the sweetness of Honey may be lost, let these be mingled. Then pour on two vessels of the best Wine, then let them settle. After some days strain it through a hair cloth Strainer, or one of cloth to cleanse it from filth and Excrements. A Liquor will run from this that will serve for sparing, and to abate charge in a family, and it is good to drink in health and sickness. Cover it close, and drink it. I shall show you another way to make,

### **"Wine of Raisins."**

**Pour into a Brass Caldron seven vessels of water, put in two pounds of Raisins, let them boil till they be wasted in the water, and the water be sweet as Mead. If your Kettle be too small, do it at several times. Then take your Kettle from the fire, and when the Liquor grows cold, strain it gently forth. Put up the strained Liquor in a Wine vessel, and pour into it a measure of the sharpest red Wine Vinegar to abate the sweetness of the Raisins, then add nine pounds of Tartar finely powdered unto it. And pouring on a fourth part of the best Wine, stop the vessel close when it is full, after one week use it. Another,**

### **"Wine of Quinces."**

**Put into Brass Caldrons Glazed with Tin a vessel of new Wine, and put thereto about fifty wild Quinces, namely such as are full of streaks and wrinkled. Take out their Kernels. Cut the Quinces in pieces like as you do Rape roots. Boil all at a gentle fire. When they have boiled awhile, take them off, and let them cool. Pound the Quinces in a Mortar with a wooden Pestle, press them out with a press. Put the juice pressed forth of them the new Wine, and set it up in a Glazed earthen vessel for a whole year. When Wine is scarce and you have occasion to use this, put into a vessel four parts of water, two of new Wine, and one fourth part of the aforesaid mixture. Cover the vessel and let it boil, and when it is clear use it. Of all these an Amphora of Vinegar, a pound of Honey, as much Tartar in powder. Let them boil awhile in a pot Glazed with Nitre, and mingle them, and for every vessel of water pour on an Amphora of Wine, and cover all. After twenty days use it. Or take Honey one pound, as much red Wine Tartar in, half a pound of Raisins, two Amphoras of Vinegar. Let them boil in a pot. Add Wine also to them, and it will be for drink. I shall add the northern drink,**

### **"Wine called Metheglin."**

**The drink in Pannonia, Poland and England is more pleasant and wholesome then many Wines are. It is made of twenty pounds of good Honey, and of water, one hundred and twenty pounds, skimming it till all comes to eighty pounds, which being cold and tunned up into a Wine vessel, put in Leaven of Bread six ounces, or as much as will serve to make it work, and purify itself. And withal put into a bag, that hangs and may be put into the Liquor, and not touch the bottom, of Cinnamon, Granes of Paradise, Pepper, Ginger, Cloves two drams, one handful of Elder flowers. Let them stand in a Wine cellar all the Winter, in Summer let them forty days in the Sun, till they taste like Wine, and the unpleasant taste of the Honey be gone. But it will be more pleasant if you add a third part of Wine.**

## **Chapter XXII**

### **"How Vinegar may be made diverse ways, and of what."**

**After Wine it follows to speak of Vinegar. First, how our forefathers made it. Then how of late years, that it may be made extreme sour, which is not only good for a family, but is necessary for many**



arts. Also there are some countries where Wine, and so Vinegar is scarce. Therefore in those places diverse men have used their wits to make it. Wherefore to begin, we say that,

"Vinegar may be made of the Fig-tree,"

Out of Columella; A green Fig must be taken very betimes, and also if it has rained, and the Figs fall to the earth beaten down with showers. Gather those Figs and put them up in a Hogshead or Amphora. Let them Ferment there; then when it grows sharp, and has sent out some Liquor, what Vinegar there is strain it out diligently, and pour it into a sweet Pitched vessel. This yields the best sharp Vinegar, and it will never grow musty or Hoary, if it be not set in too moist a place. Some to make more quantity, mingle water with the Figs, and then they add to them the ripest new Figs, and they let them consume in that Liquor, until it tastes sharp enough like Vinegar, then they strain all through Rush baskets, or within bags. And they boil this Vinegar till they have taken off all the froth, and filth from it. Then they add some Torrefied Salt, and that hinders Worms and other other Vermin to breed in it. Cassianus makes it thus; Put into a vessel old Figs, Torrefied Barley, and the internal parts of Citrons. Stir it often and diligently, and when they are Putrified and soaked, strain them out, and use them. Apuleius, they make Vinegar of Figs, wet upon the trees, and cast into water to Putrify. Dioscorides, the Liquor of Figs Steeped grows sharp as Vinegar, and is used for it. There is also,

"Vinegar of Dates."

To Date Wine we speak of, some add water, and receive it again. And they do this three, four, five, or six time, and at last it grows sour. Form the same, Pliny teaches,

"Vinegar of Honey."

You must wash your Honey vessels, or hives in water, with this Decoction is made the most wholesome Vinegar. Palladius teaches the way to make,

"Vinegar of Pears."

Wild Pears are such as are sharp and ripe, are kept three days in a heap, then they are put into a vessel, and fountain or river water is put to them. The vessel is left covered thirty days, then as much Vinegar as is taken out for use, so much water is put in to repair it. Cassianus makes,

"Vinegar of Peaches."

Put soft delicate Peaches into a vessel, and add parched Barley to them. Let them Putrify for one day, then strain them out, and use it. We may from Cassianus make,

"Vinegar without Wine."

If you boil Gypsum and Seawater, and then mingle it with river water, and use it being strained. But if you will,

"Turn Wine into Vinegar, and contrarily Vinegar into wine,"

Cassianus has it. He puts Beet roots Bruised into Wine, it will be Vinegar when three hours are over. But if he would restore it again as it was, he puts in Cabbage roots.

**"To make the same."**

**We may do it another way and quickly. Cast into Wine, Salt, Pepper and sour Leaven, mingle them and they will soon make it Vinegar. But to do it more quickly, quench in it often a red hot Brick or piece of Steel. Also provide for that unripe Medlars, Cornels, Mulberries and Plums. But Sotion shows to make,**

**"Sharp Vinegar of new Wine."**

**Dry the mother of Wine of Grapes at the Sun, and put them into new Wine, adding a few sour Grapes thereto and it will make sharp Vinegar that will be for use after seven days. Or put in Pellitory of Spain and it will be sharp. Moreover, if you boil a fourth or fifth part of Vinegar at the fire, and put that to the rest, and set all eight days in the Sun, you shall have most sharp and pleasant Wine. The roots of old Grass, and Raisins, and the leaves of a wild Pear tree Bruised, and the root of the Bramble, and Whey of Milk, burnt Acorns, Prunes roasted, and the Decoctions of Chinchas, and pot shards red hot, all of these put severally into Vinegar, will make it tart. Apuleius teaches,**

**"To double the quantity of Vinegar ."**

**Take a good measure of Vinegar, about a Metreta, and to that add one Metreta of Seawater boiled to half, mingle them and set them aside in a vessel. Some Steep Barley and strain it, and of that juice they mingle one Metreta, and they stir them together, and they cast in torrified Salt when it is yet hot, a good quantity, then they cover the vessel, and let it stand eight days. But I use to make it thus,**

**"Vinegar of clusters of Grapes pressed forth."**

**After the Vintage, we cast in the clusters when the Wine is pressed forth into a wooden vessel, and we pour upon them a quantity of water, and it will be Vinegar when a week is over. Moreover, we cut the tendrils from Vines, and Bruise them, and put water to them, and it will be Vinegar. Also thus,**

**"Ill Wine is turned to Vinegar."**

**When the bunches of Grapes are pressed forth, lay them between two wooden bowls, not very thick together, let them grow hot for four days. Then pour on them so much naughty Wine as may cover them. Let them alone twentyfour hours, then strain them into another wooden bowl, and after so many hours, put them into another bowl, and do so till it be turned into most sharp white Vinegar. And if you would make more of the same clusters, pour on them some sharp Vinegar, and let them alone till they be extreme sharp and sour, then take that out and pour on ill Wine, and do as you did. Lastly, press those clusters out in a press, and you shall recover as great quantity as of the Wine that was spent.**

## **Chapter XXIII**

**"How the defects of Wine may be managed and restored."**

Our forefathers found out many remedies to preserve Wine, and in our days we have taken no less pains. For Wine is easily corrupted, and takes to itself many strange qualities. Paxamus says, Wine either grows sour or dead about the Solstices, and when the seven stars set, or when the Dog Star causes heat, and when it is extreme cold, or hot, or rainy, or windy, or when it thunders. We shall show remedies for all these. First, we shall lay down out of Africanus, the signs to know Wines that will last, or will corrupt. When you have put your Wine into a vessel, after sometime change the vessel, and look well on the lees. For there shall you know what the Wine is, proving it by smelling to it, whether it corrupt, or Weevils breed in it, these are signs it Putrifies. Others take Wine out of the middle of the vessel, they heat it, and when it is cold they taste of it, and they judge of the Wine by the favour, some by the smell of the cover. A strong taste is the best sign, a watery, the worst, sharpness of duration, weakness of corrupting. The signs must be taken at the times to be feared, we mentioned above. But to come to the remedies, we shall show how,

"To mend weak Wine."

The Wine will be weak, when it begins to breath forth that force of heat. For when the soul of it is breathed forth, the Wine grows immediately sour. Vinegar is the carcass of Wine. Then we may presently prevent it by adding Aqua Vitae to it. For by that it may put on a new soul. The measure will be the forth part of a pound for a vessel. Another remedy will be,

"That Wine may not grow hot."

In the summer Solstice Wine grows hot by the hot weather, and is spotted. Then put Quicksilver into a Glass Vial well stopped, and hang it in the middle of the vessel, and the coldness of it will keep the Wine from heating. The quantity is two pounds for very great vessels. For when the air is hot, the external heat draws forth the inward heat, and when that is gone, it is spoiled. We,

"That Wine may not exhale."

Use this remedy. The vessel being full, we pour Oil upon it, and cover it, for Oil keep the spirits from evaporating, which I see is now used for all Liquors that they may not be perverted. Wines sometimes are troubled. But,

"To clear Wines,"

Frontinus bids us do thus. Cast three whites of Eggs into a large earthen dish and beat them, that they may froth. Put some white Salt to them, that they may be exceeding white, and pour them into a vessel full of Wine. For Salt and the white of an Egg will make the thick Liquors clear, but as many Dolia or such measures as there are in the vessel, so many whites of Eggs must you have, to be mingled again with so many ounces of Salt, but you must stir the mixture with a stick, and in four days it will grow clear. Also it is done,

"That Wines may not corrupt."

I said that Salt keeps all things from corrupting. Wherefore for every Dolium, powder one ounce of Allome, and put it into the Wine vessel with the Wine, for it will keep it from corrupting. The same is done if you put in one ounce of common Salt, or half one, half the other. Also Brimstone hinders Putrefaction. Wherefore if you shall add to eight ounces of Allome or of Salt, four ounces of Brimstone, you shall do well. The Ancients were often found to preserve Wine, by adding Salt or

Seawater to it, and it would continue along time. Columella teaches thus, when the winds are quiet you must take water out of the deep sea. When it is very calm, and boil it to thirds, adding to it, if you please, some spices. There are many ordinary things, but we let them pass.

## Chapter XXIV

"How Oil may be made of Diverse Things."

It is an excellent thing to show the diversity of ways to make Oil. That if Olives should ever be scarce, yet we might know how to draw Oil from many kinds of fruit and seeds. And some of these ways that came from the Ancients, yet only the best and such as are our inventions. Wherefore to begin, we say that,

"Oil may be made of Ricinus, called Cicinum."

Dioscorides makes it thus. Let ripe Ricini, as many as you please, wither in the hot Sun, and be laid upon Hurdles. Let them be so long in the Sun, till the outward shell break and fall off. Take the flesh of them and bruise it in a Mortar diligently, then put it into a Caldron Glazed with Tin that is full of water. Put fire under and boil them, and when they have yielded their inbred juice, take the vessel from the fire, and with a shell, skim off the Oil on the top, and keep it. But in Egypt where the custom is more common. For they cleanse the Ricini and put them into a mill, and being well ground, they press them in a press through a basket. Pliny says, they must be boiled in water, and the Oil that swims on the top must be taken off. But in Egypt where there is plenty of it, without fire, and water sprinkled with Salt, it is ill for to eat, but good for candles. But we collected them in September, for then is the time to gather them, with it parts from a prickly cover and coat that holds the seed in it. It is easily cleansed in a hot Caldron. The weight of Oil is half as much as the seed, but it must be twice knocked, and twice pressed. Palladius shows how,

"Oil of Mastick is made."

Gather many grains of the Mastick tree, and let them lie in a heap for a day and a night. Then put a basket full of those berries into any vessel, and pouring hot water thereto, tread them and press them forth. Then from that humour that runs forth of them, the Oil of Mastick that swims on the top is poured off. But remember lest the cold might hold it there, to pour hot water often on. For thus we see it made with us, and the the country of Surentum. Also, so is made,

"Oil of Turpentine,"

As Damageron teaches. The fruit of Turpentine is ground in a mill, as the Olives are, and pressed out, and so it sends forth Oil. The Kernels serve to feed Hogs and to burn. Likewise,

"Oil of Bays,"

Boil Bayberrys in water, the shells yield a certain fat. It is forced out by crushing them in the hands, then gather the Oil into horns. Palladius almost as Dioscorides, in January, boil many Bayberrys, that are ripe and full in hot water. And when they have boiled long, the watery Oil that swims on the

top that comes from them, you shall gently pour off into vessels, driving it easily with Feathers. The Indians make as it is said,

"Oil of Sesamon."

It is made as we said before, it sends forth excellent Oil abundantly. There is made,

"Oil of the Plane-Tree."

Pliny, for want sometimes they are forced to make Oil for candles, of the Plane-Tree berries soaked in water and Salt, but it is very little as I proved. Pliny says the Indians make,

"Oil of Chestnuts,"

Which I think very difficult, for but a little will come from them, as you shall find if you try. He said also, that Gallia Cisalpina made, Oil of Acorns of the Oak to serve for lights. But we can make very little. Also the Ancients used to make,

"Oil of Walnuts,"

That they pressed from the Walnuts, unsavory and of a heavy taste. For if there be any rottenness in the Kernel, the whole manner is spoiled. Now Gallia Cisalpina makes it for to eat, and for lights also. For lights, by parting the naughty Nuts from the sound. But the best serves for to eat at second courses. These therefore are to eat, and those for lights, they burn clear, and there is nothing that yields more Oil. For it turns almost all to Oil. For one pound of cleansed Nuts will yield almost ten ounces of Oil. Now follows,

"Oil of Sweet Almonds ,"

Oil of sweet Almonds is best for food, and of bitter, for Physick, and of old it was made with great diligence. Dioscorides, shows the way how half a Bushel of bitter Nuts cleansed and dried, are pounded in a Mortar with a wooden Pestle into lumps. Then a Sextarius of seething water is poured on, and when for half an hour the moisture is drunk in, they are beaten more violently then before. Then is it pressed between boards, and what sticks to his fingers is collected with shells. The Nuts being pressed again, a Hemina of water is sprinkled on them, and when they have drank that up, they do as before. Every Bushel yields an Hemina. With us it is commonly drawn out the same way. These are the oils of the Ancients. Now we shall proceed with our oils. Follows,

"Oil of small Nuts."

They yield abundance of sweet scented excellent Oil, which all may use also for meats. One pound of cleansed Nuts will yield eight ounces of Oil, which former times were ignorant of.

"Oil of Pistaches,"

serve for meat and Physicks.

"Pine Kernels Oil is made."

They are Culled, and the naughty ones serve for lights, but the Oil that comes from the best, is for to

eat, and for Physick, very much is Extracted I saw it at Ravenna. But,

"Oil of Beech,"

The best of all is pressed out in abundance, for meats and for lights. It burns very clear, and tastes as sweet Almonds, and the whole Nut almost goes into Oil as the Walnut does. The older the tree is, the more Oil it yields, and the Lees of the Oil is excellent to fat Oxen and Hogs. They are soon gathered, cleansed, Bruised and pressed. We pressed also,

"Oil from the Bastard Sycamore,"

As they call it, for it is abundant in seed, and in winter the boughs of it are seen loaded with seed only. In February we collected it and crumbled it, the shell is broken into six or seven parts, the Kernels are like a Pear. They are Bruised and heated in a pan, then put into a press, and they yield their Oil. They make clear light in lamps, and the seed yields a fourth part of Oil. There is drawn,

"Oil out of the Sanquine-Tree"

for lights. About the middle of September the ripe berries are taken forth of the clusters. Let them dry a few days, Bruise them, and let them boil in water in a Brass Kettle for one hour, then put them into the press, you shall have green colored Oil, about a seventh part of the seed. The mountainous people use it. There is pressed,

"Oil out of Grapes or Raisins,"

The Greeks called these Gigarta. Gallia Cisalpina makes Oil of them, Bruised, heated, and pressed in a press, but it is very little fit for lights, because it burns exceeding clear. There is much in Egypt,

"Oil out of Radish Seed."

They use it to season their meats, and boil it with them. But Gallia Cisalpina pressed Oil out of Radish seed, and Rape seed. Rapes are pulled up only in November, but they are covered with sand together with their leaves. They are planted in March, that they may seed in May. For unless they be pulled up, the freeze with winter cold. But there is another kind of Rape that is sown in July. It is weeded. It comes forth in the spring and in May it yields seed. Out of a quarter of a Bushel of it, eighteen pounds of Oil are drawn. It is good for lights, and for common people to eat. If you sow a whole Acre with this seed, you shall have five loads of seed, and of every load you may make two hundred pounds of Oil. It is only plowed and weeded. Also,

"Oil is made of the seed of Cameline."

it is made for lights, but those of Lomardy make great plenty of a golden colored Oil of a seed like to this, called Dradella. It has plaited leaves as wild Rochet, which they sow among Pulse. The same may be said of the seeds of Nettles, Mustard, Flax, and Rice.



**"How a Householder may provide himself with many sorts of Thread."**

Now shall I speak of many sorts of Yarn, because this may much help the household. For the housewife has always need of it. Our ancestors used Hemp and Flax. For thus they made,

**"Yarn of Flax"**

Yet there needs no example, the Thread is so common. I will speak of those that follow, and of other inventions. Pliny. Flax is known to be ripe two ways. When the seed smells, or looks yellow. Then it is pulled up and bound by handfuls. Dried in the Sun, letting it hang with the roots upwards for one day. Then five of these bundles standing with their tops one against another, that the seed may fall in the middle. Then after Wheat harvest, the the branches are laid in the water that is warm with the Sun. They are kept down by some weight and soaked there, and again, as before, turned upside down they are dried in the Sun. Then being dried, they are Bruised on with a Flax-hammer. That which was next the Rind is called hard, or the worst Flax. And it is fit for to make wicks for candles. Yet that is stuck in with Hacks, until all the Membranes are pulled clean. The art of Kembing, and making of it, out of fifty pounds of Flax bundles, to make fifteen pounds of Flax. then again it is polished in Thread, it is often beat upon a hard stone with water, and when it is woven it is Bruised again with Beetles, and the more you beat it, the better it is. Also there is made,

**"Thread of Hemp,"**

Hemp is excellent for rope. Hemp is plucked up after the Vintage, but it is cleansed and worked with great labor. There are three sorts of it. That next to the Rind is the worst, and that next the Pith, the middle is the best, which is called Mesa. Another,

**"To make Thread of Broom."**

It is broken and pulled from the Ides of May, until the Ides in June. This it the time when it is ripe. When it is pulled, the bundles are set in heaps for two day to take the wind. On the third day it is opened and spread in the Sun, and is dried. Then it is brought into the house in bundles. Later it is well Steeped in Seawater, or other water where that is wanting. Then being dried in the Sun again, it is watered. If we have present need of it, if it be wet with hot water in a vessel it will be the shorter way. But it must be heated to make it good. For the fresh hot Seawater cannot soften it enough. Ropes of Hemp are preferred when they are dry, but Broom is preserved wet to make good the dryness of the ground it grows on. The upper part of Egypt toward Arabia, makes Linen of Cotton. Asia makes Flax of Spanish Broom, especially for Fishermen nets to last long. The shrub must be soaked for ten days. And so every country has its Thread made of diverse plants and shrubs. We know that there is made,

**"Thread of Nettles,"**

Among the Northern people, and it is very fine and white. Also there is made,

**"Thread of Aloes in America,"**

It is hard, white, and most perfect. I shall describe it by their relation, because the extreme parts are full of prickles. We strike them off that they may not hinder us. And we cut the branches into long

pieces long ways, that the substance under the rind may be the better taken away. Then two poles of wood are fastened in the earth, crossing one the other in the middle like a cross. These are held fast with the left hand, to make them hold fast together, and with the right the before mentioned pieces or Fillets are taken by one end and drawn over the cross. The inward part may part from the woody part. And the Flax from the substance. And then they are Kembered so often, till they become white, pure, nervous, as Fiddle or Harp strings. Then they are washed, dried, and laid up. In thirteen years after that it is planted, leaves grow very long. Even twenty foot. The stalk rises in the middle forty foot long. Then the top is adorned with flowers and bears fruit. I saw this in Rome, and I never remember that I saw anything more beautiful. I shall now speak of Flax called Asbestinum. Pliny says there is Flax also found, that fire will not consume. They call it Live-Flax. I have seen Napkins and table cloths burning in the fire at feasts, and they were better cleansed of filth by the fire then they could be by water. Wherefore of this they made coats for kings funerals, to keep the ashes of the body from other ashes. It grows in India in the deserts and scorched places with the Sun, where no rain falls. But there are terrible creatures and Serpents, and this is preserved by burning. It is hard to be found, and difficult to wear, because it is so short. When it is found it is as dear as the most precious Pearls. The Greeks call it Asbestinum from the nature of it. So says Pliny, out of which words it is plain that he knew not the stone Asbestinum, when he said that it was hard to find, and difficult to wear for the shortness of it. For it is Kembered and spun by every woman almost, if she is not ignorant of it, as I saw in Venice, a woman of Cyprus and another of Valentia. They showed me it in great abundance in the Arsenal or Hospital. It is an excellent secret. Very rare and profitable, though few knew it of our times. But I have freely communicated it, though it cannot be had, but at great rates.

## Chapter XXVI

### "To Hatch Eggs without a Hen."

Now shall I show how without a Hen, Eggs of a Hen and other birds may be hatched in summer or winter. So that if any sick people desire to eat Chickens then, they may have them. Bird Eggs are hatched with heat. Either of the same birds or of others, as the heat of man, of the Sun, or fire. For I have seen Hens sit on Geese, Ducks, and Peacock Eggs. And Pigeons sit on Hen Eggs, and a Cuckow to sit upon any of them. And I have seen women to foster and hatch Eggs between their breasts in their bosoms, and under armpits. Livia Augusta, when she was young and great with the child of Nero, by Caesar Tiberius, because she earnestly desired to bring first a boy. She made use of this Omen to try it by. She fostered an Egg in her bosom, and when she must lay it aside, she put it into her nurse's bosom, that the heat might not abate, Pliny. But Aristotle says that bird Eggs and Eggs of forefooted beasts are ripened by the Incubation of the Dam. For all these lay in the earth, and their Eggs are hatched by the warmth of the Earth. For if forefooted beasts that lay Eggs came often where they are, that is more to preserve and keep them then otherwise. And again, Eggs are hatched by sitting. It is nature's way, but Eggs are not only so hatched, but of their own accord in the earth, as in Egypt covered with Dung they will bring Chickens. Diodorus Siculus de Egyptiis. Some are found out by man's industry. By those that keep birds and Geese. Besides, the ways that others have to produce them, that they may have birds that are strange, and great numbers of them. For birds do not sit upon their Eggs, but they by their skill hatch the Eggs themselves. At Syracuse a certain Drunken companion put Eggs under the hearth in mats, and he would not leave off drinking until the Eggs were hatched. In Egypt about grand Cairo, Eggs are artificially hatched. They make an oven with many holes, into which they put Eggs of diverse kinds. As Goose eggs, Hen Eggs, and

of other birds. They cover the oven with hot Dung, and if need be they make a fire round about it. So are the Eggs hatched at their due times. Paulus Jovius in his Book of Histories. In Egypt there is abundance of Hen Chickens. For Hens do not there sit on their Eggs, but they are hatched in ovens by a gentle heat. That by an admirable and compendious art, Chickens are hatched in very few days and bred up. Which they tell not by tale, but by measure. They make the measure without a bottom, and when it is full they take it away. And in the island of Malta in Sicily, they make an oven, where into they put Eggs of diverse fowl. As of Hens, Geese, then they make a fire round that, and the Eggs grew rip at times. But let us see how our ancestors hatched their Eggs. Democritus teaches,

"If a Hen does not sit, how she may have many Chickens,"

The day you set your Hen upon Eggs, take Hen Dung, pound and sift it, and put it into a hollow vessel with a great belly. Lay Hen feathers round about. Then lay your Eggs upright int it, so that the sharp end my be uppermost. And then of the same Dung, sprinkle so much on them till the Eggs are covered. But when your Eggs have lain so covered for two or three days, turn them afterwards every day. Let not one touch the other, that they may heat alike. But after the twenty days when the Chickens begin to be hatched, you shall find those that are in the bottom to be cracked around. For this reason you must write down the day they were set, so you don't mistake the time. Wherefore on the twentieth day, taking of the shell, put the Chickens into a pen and be tender of them. Bring a Hen to them which is best to order it. Yet I tried this most diligently, and it took no effect. Nor can I tell how it should be done. They that commend the oven, do not teach the manner how it should be done. But what I have done myself, and I have seen others do, I shall briefly relate, that with little labor and without Hens, anyone may,

"Hatch Eggs in a hot Oven."

Make a vessel of wood like a Hogshead. Let it be round, and the diameter so long as your arm, that you thrust in, that you may lay and turn the Eggs. Let it be four foot in altitude. This we divide by three boards within into three parts. Let the first be a foot and half, the second little above a foot, the third a foot, and the fourth the least of all. Let every Concavity divided with boards have a little door thereto, so large as you may thrust in your arm, and its shut to open and shut at pleasure. Let the first and second loft be made of thin boards, or wrought with twigs. Let the third be of Brass arched, and the fourth of solid wood. Let the first and second stage have a hole in the center three fingers broad, through which must pass a Brass or Iron pipe tinned over. That must come half a foot above the second story, and so in the lower most, but in the bottom the Orifice must be wider, like a Pyramis or Funnel. So that it can fitly receive the heat of the flame of a candle put under it. In the second story let the pipe be perforated about the top. That the heat breathing forth thence, the place may be kept warm, and the Eggs may be hot in the upper part, as they are under the Hen. Above these three rooms strew Sawdust, which I think is best to cover them. Let the Sawdust be highest about the sides of the Hogshead, but less in the middle. In the bottom where the pipe is lower, the the Eggs lie upon it may receive the heat that comes from the pipe every way. In the third story where the pipe ends, let it be pressed down about the sides, and higher in the middle about the pipe. Let a Linen cloth cover the Sawdust. A fine cloth that if it be fouled it may be washed again. And the Chicken hatched may go upon it. Lay upon every story a hundred Eggs more or less. Let the great end of the Eggs lie downwards, the sharp end upwards. The walls of the Hogshead that are above the Sawdust with the Concavities , and the upper part of the story must be covered with Sheep skins, that their warmth may keep in the heat. In the lower Concavity under the tunnel, must a light lamp be placed, at first with two wicks, in the end with three in Summer. But at beginning of winter, first with three, and last with four or five. Let the light fall upon the middle of the tunnel, that the heat ascending the pipe, the rooms may all heat alike. The place where this vessel stands must be warm

and stand in a by place. In the lower part where the lamp is lighted, you must lay no Eggs. For the heat there will not hatch them. But where the Chickens are wet when they are first hatched, shut them in here to dry them by the warm heat of the lamp. Marking twice or thrice every day whether the heat abate, be warm or very hot. We shall know it thus. Take an Egg out of the place, and lay it on your eye, for that will try it well. If it is too hot for you, the heat is too much. If you feel it not, it is weak. A strong heat will hatch them, but a weak one will make them Addle. So you must add or take away from your lamp, to make the light adequate and proportionable. After the fourth day that the Eggs begin to be warmed, take them out of the cells, and not shaking them hard, hold them gently against the Sun beams or light of a candle, and see whether they be not Addle. For if you discern any fibers or bloody matter run about the Egg, it is good. But if it is clear and transparent, it is naught. Put another Egg in place of it. All that are good must be daily turned at the lamp heat, and turn them round as the Hen is found to do. We need not fear spoiling the Eggs, or if any man does handle them gently. In summer after nineteen or twenty days, or in winter after twentyfive or twentyeight days, you shall take the Eggs in your hand, and hold them against the Sun and see how the Chicken beak stands. There break the shell, and by the hole of the Egg take the Chicken by the beak and pull out its head. And lay it in its place again. For the Chicken will come forth itself. And when it is come out, put it in the lower cell as I said. But let the lamp stand something from the Parement, or the Chickens allured by the light, should pick at it and be burned by it. And if you do work diligently as I have shown you, in three hundred Eggs, you shall hardly loose ten or twenty at most. But because they are hatched without the Dam, I must show how to make,

"A Cock fosters Chickens as the Hen does."

For they would die, if none did keep them. But a Cock or Capon will perform what the Hen should. Do but show him the Chicken, and stroke him gently on the back, and give him meat out of your hands often, that he may become tame. Then pull the Feathers off of his breast, and rub him with Nettles. For in a few hours, not to say days, he will take care of the Chickens so well and give them their meat, that no Hens did ever do it as he will.